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Valediction*

By V. Gordon Childe

Having reached the age at which a university professor is bound to retire, it may be useful to sum up the conclusions of forty years as to the main tasks confronting archaeology in Britain.

1. First a truism that is hardly a task for archaeology: our most urgent need is still a reliable absolute chronology or at least a global temporal frame within which events in different cultural provinces may be compared, i.e. seen as earlier, contemporary or later. It is theoretically feasible to correlate the several relative chronologies, established stratigraphically in the different provinces, so that the horizontal lines dividing each of the vertical columns should run continuously across the whole page, dividing it into truly global periods. But reliable correlations can only be effected by "cross-datings", by this I mean the observed interchange of type-fossils, manufactured articles each distinctive of a province and a period in it. That alone can establish synchronisms; typological homotaxy or stadial equivalence must never be mistaken for contemporaneity as it was so long by those who believed that "Aurignacian" or "Neolithic" designated a precise span of sidereal time. In so far as the net of periods, thus duly established, embraced provinces in which written records were available, some periods would then receive limiting dates in years and so acquire duration. But before the Bronze Age such interchanges of archaeologically usable articles must have been exceedingly rare. Before 3000 B.C. no periods whatsoever could be given "historical" dates. Finally the dates extracted from written texts are often very unsatisfactory. Estimates for the first of these, the unification of Egypt under "Mena", range over at least 300 years; in Mesopotamia all dates before Sargon of Agade are little more than guesses, and his date, dependent on that of Hammurabi, may be put anywhere between 2350 and 2270 B.C.; in Scotland not a single site or type can be confidently and precisely located between A.D. 400 and A.D. 800! In fact long before an archaeological frame has been fitted by cross-datings firmly on to Europe and the Near East (*sensu Americano et Europaeo sed non Anglico*) a more trustworthy chronology, independent of archaeology and of any historical assumption, may well have been provided by radio-carbon, and that is already being

*This essay was received in London after Professor Childe's death, having been posted by surface-mail early in October, 1957. It has been given a title but is otherwise printed as received.

invoked to check historical dates in Egypt and Mesopotamia. In other words, archaeologists will abandon responsibility for chronology or themselves become nuclear physicists. In any case every prehistorian must master enough mathematics, physics and chemistry to appreciate the limitations of the information the latter can provide.

Nor can I now regard as an immediately fruitful direction for archaeological research the problem that originally led me into archaeology—to identify the "primitive culture" of the Indo-Europeans and to locate their *Urheimat*. I still believe that this is a legitimate question. An Indo-European culture must have existed as much as an Indo-European language and should be identifiable by archaeological means, and to it should be traceable distinctive traits in some cultures of India, Iran, Greece and Italy. But I no longer believe that the problem can be solved archaeologically with the available data nor that any strictly archaeological research, not even excavation, can profitably be directed simply to its solution. A thorough study of the animal bones from excavated sites by a competent zoologist might contribute to a solution; Indo-European familiarity with horses is certain and distinctive, while the diagnosis of equine bones—and often their stratigraphical position—at Anau and Sialk, in Anatolia and Greece is very unsatisfactory. But that is a task for zoology rather than archaeology as usually conceived. And careful collection of animal bones in future excavations especially in India, Iran and the Near East will surely be needed before conclusive results are to be expected. In museum cases there may still be lying about unrecognised some bits or models of wheeled vehicles that were just as certainly familiar to Indo-Europeans though not so distinctive, but such unknown examples must be very few, and there is no use digging just to find more; for wheeled vehicles are preserved only under quite exceptional circumstances and will turn up as an uncovenanted bonus in the course of excavations directed to other ends as at Storozhevaya Mogila.

The economic, sociological and ultimately historical interpretation of archaeological data has, I believe, now become a main task that can contribute enormously to human history and should enhance the status of archaeology.

2. (i) A deeper analysis and ecological description of recognised cultures directed towards disclosing the functional integration of their surviving constituents and reconstituting the economic and sociological linkages between the latter are suitable themes for doctorial theses, though even these demand botanical and zoological diagnoses of food refuse and petrological and metallographic analyses of artifacts and a reconstitution of the environment with the aid of pedology and palaeobotany.

So soon as a reasonable culture sequence be available (as now over most of Europe and the Near East) the immediate task is first to clarify the economy and sociology of the constituent cultures, or rather of the societies they represent in the archaeological record. What did they live on? Here botanical and zoological reports on food refuse will be requisite. In what environment? But remember that the effective environment was that known to and exploited by the society with its available equipment and applied

sciences. How was the land exploited—from lone-steadings, dispersed hamlets or nucleated villages? How old is the lone-steading so characteristic of the British Iron Age? Air-photography has revealed it in "Neolithic" Apulia and Calder's "Neolithic" farms in Shetland, each on its own distinct plot of arable, belong to this category rather than to that of Skara Brae, Barkaer, Koln-Lindental and other villages. The answers will, of course, illumine the sociological issues connected with land tenure and incidentally the Indo-European problem if Palmer's thesis be accepted. The issues just raised can hardly be settled without some further excavation, and that total excavation, even in North-Western Europe. In the Balkans and on the Anatolian plateau all the relevant and revealing excavations remain to be done; it is conceivable that some Turkish *hüyüks* or Thessalian *toumbas* might turn out to represent just lone-steadings. And finally, how many households in each village or in each natural unit area (a block of downland or a single löss-clad slope might be more profitably considered than *n* square miles of mixed land)? In brief, what sort of population density has to be reckoned with? For this sort of issue a fully excavated cemetery would be nearly as good as a totally excavated village, but in either case we must be able to estimate the total number of graves or houses and in the former instance we need some idea of the age at death and the duration of the cemetery's use.

Note that not only for prehistoric phases but also for periods fitfully illuminated by written texts is archaeological evidence needed for the elucidation of economic and demographic as well as technological problems. Even Domesday Book can profitably be supplemented, not just illustrated, by excavation of village sites. Archaeological evidence alone indicates the use of water-power in Roman Britain that would never have been suspected from a study of ancient authors or inscriptions. The excavations at Olynthos have brought us nearer to an estimate of the population of a fifth-century Greek city than all the erudite studies of texts and inscriptions. In so far as the above questions can be answered, a reasonable account of the culture's (i.e. the society's) economy can be offered; the culture can be described as a functioning economic organisation.

(ii) From this basis it is worth while and indeed obligatory, however perilous, to attempt some sociological inferences. After all, the division of the product, what Marxists call the relations of production, is really an integral moment in the economy. From cemeteries and totally excavated settlements we have some hope of recognising not only a *de facto* distinction between richer and poorer households—that on ethnographic evidence might be taken for granted—but also a division of society into rich and poor as classes. Bernabó Brea's recent account of Poliochni, where large and small houses were juxtaposed indiscriminately, represents a "pre-class" society as surely as the distinction between artisans', "merchants' " and ruler's *quarters* at Harappa illustrates class division. In the funerary record too class divisions should be reflected in qualitative as well as quantitative differences in architecture, ritual and furniture. "Royal Tombs" are not merely larger and more richly furnished than the vast majority of contemporary graves,

but exhibit also qualitative differences in structure and ritual (*mastaba*, tholoi, human sacrifices, burial of funerary barques or hearses); they perhaps illustrate the elevation of a *king* above society rather than a division within it. But to distinguish such *kings* from the more familiar barbarians' *chiefs* who remain subject to all a tribesman's customary obligations despite pre-eminence in wealth and prestige, experts rather than professionals, may overtax archaeological information. Classes or ranks we may infer confidently but only from contrasts in funerary practice and contrasts that are both quantitative and qualitative; for the qualitative contrast between cremation and inhumation burials in ancient Rome had nothing to do with rank or wealth. By these criteria Dvořak could distinguish three classes in some Bylany cemeteries. In the sepulchral record for Mycenaean Greece we cannot find evidence for a three-class system (allegedly implied in some texts) unless we find in addition to tholos tombs (surely attributable to *dioi basilees*) and chamber tombs (belonging perhaps to Palmer's *telestai*) a third kind of grave in which perhaps simple peasants, like the villagers of Korakou and Zyguries, would have reposed. So too the rich Bronze Age barrows of Wessex, Brittany and Jutland cannot be attributed to a pastoral aristocracy—what Australians would call a squattocracy—with real confidence until contemporary commoners' graves have been identified. Unless other Neolithic burials are recognised, long barrows and Megalithic tombs are liable to appear as communal ossuaries to which every member of the local group would eventually be consigned—an inference which reacts terribly on demographic conceptions. This kind of deficiency in the funerary record could, of course, be corrected by reference to settlement sites; but at present no Middle Bronze Age settlements have been identified in Britain or Denmark and no regular village associated with a known long barrow in England or Scotland!

(iii) I believe foredoomed to failure any attempt to recapture the subjective motives or emotions that inspired the overt acts the results of which alone survive in the archaeological record. Archaeologists must resign themselves to adopting a behaviourist position as much as students of animal psychology. It is no more legitimate to impute to Palaeolithic hunters or Neolithic farmers the motives and values of twentieth-century Europeans and Americans than to birds or ants. We can, of course, recognise the utilitarian purposes (not necessarily conscious) underlying the confection of tools, weapons, traps, field systems, dwelling houses and clothes; not, however, the intentions inspiring their ornamentation or the erection of temples, ceremonial burial of the dead, the execution of works of art in inaccessible caves. We should deceive ourselves if we attributed to them equally utilitarian motives. It is fun to find the same pattern on an Arunta churinga and an Irish grave slab. Let us not waste our time in deciphering such sepulchral carvings by reference to the recorded meaning of similar patterns in aboriginal Australia. The value of such ethnographic comparisons is just to show the funny kinds of meanings or purposes that may be attached to the queerer kind of archaeological data. The collection and interpretation of mother-goddesses is just a harmless outlet for the sexual impulses of old men. It can hardly ever throw any real light on the religion or even the sexual behaviour

of preliterate societies. The large range of "ritual" objects deserves the most scrupulous study, but only to extract therefrom the technical capacities, scientific knowledge and aesthetic values of their makers.

(iv) Archaeology can offer authentic documents for the history of science provided it be admitted that Science is just systematised social experience that can be applied—i.e. that works. In reconstituting the techniques used for producing fire, locating minerals, firing pots, smelting ores, laying out a rectangle or subdividing a circle's circumference we are reconstituting the genuine science of the age. Now it may well happen that the best evidence for applications of exact science is to be found in very unscientific ritual monuments. Very probably ideological, rather than utilitarian, motives in the first instance inspired barbarians to lay out accurate right angles or to divide circles symmetrically. True geometrical constructions may be inferred from the dimensions of ritual monuments or actually observed as temporary auxiliary features incorporated in them. The discovery of such applied geometry rather than details of ritual ceremonies or mystic lore justifies and demands the minutest observation, the most scrupulous excavation and the most accurate measurement of "ritual monuments".

(v) At least one aspect of ideology is directly, if imperfectly, documented in the archaeological record. The decoration on pots or weapons, paintings or engravings on cave walls or naked rocks, the carving of statuettes or the moulding of figurines may have been executed with a "magical" intent and so could be interpreted as utilitarian. But that is a guess. Even if it be correct, such products can be more profitably interpreted and evaluated as expressing or approximating to the aesthetic standards and ideals of the artists' societies.

3. No prehistorian can be content with describing, however functionally, his culture as a finished and static organism. It must not only function; it must change, and the observed changes must be described and explained. In so doing it is all too easy to appeal to external factors, to influences from foreign cultures or even migrations. A prehistorian would be well advised to employ a version of Occam's razor and invoke external factors only when compelled by cogent concrete evidence. (It was quite illegitimate to infer "Mycenaean influence" on Britain or Denmark from such vague similarities as spiral patterns when not a single Mycenaean import had been found in Britain or Denmark and no Danish or British manufacture even suspected in Greece.) As far as possible, changes should be explained by internal development including thereunder adjustments to documented changes in the non-human environment. Of course universal laws of social development are far fewer and far less reliable than Marrists before 1950 thought. Generalisations descriptive of the directions in which societies tend to develop have, however, been inferred albeit from a regrettably few instances. It should be one of the aims of prehistory to examine these and to establish new ones.

4. A tendency to modify tools and weapons in the direction of greater efficiency, to adjust the rural economy to secure higher productivity may provisionally be accepted as common to all progressive societies. Hence all observed changes in those directions could be interpreted as a result of independent inventions provided the postulated inventions are compatible with the observed equipment and technology of the culture. One could thus explain a shift of emphasis from cultivation to pastoralism given cereals and stock or the development of the socketed celt, given bronze-casting and knee-shafting. Even when these conditions are fulfilled, the possibility of diffusion cannot and should not be excluded. How many societies, left quite to themselves, were or are progressive? It is arguable that all progress, indeed all change, is due to the stimulus of contact with other societies, the cross-fertilisation of divergent traditions. Indeed, one ground for demanding a reliable chronological framework is just to see whether there be not a correlation between the rate of change and the intensity of intercourse with other societies. The prehistorian will seek eagerly for any concrete sign of foreign influence without attributing all changes thereto or accepting as evidence therefor rather vague similarities with, say, the pottery of remote regions. How fallacious the "Mycenaean" inspiration of Iberic pottery has turned out to be! Before diffusion can be invoked to explain an innovation, we must in the first place have found in the archaeological record one society where the device was current earlier, once more requiring a global chronology, and then look for other less ambiguous indications of contact with the culture thus established. And if invasion is to be admitted as the mechanism, the invading culture must be well defined in its home land and must bring with it a substantial number of its distinctive archaeological traits.

5. A prehistorian, like any other historian, should aim not only to describe, but also to explain; historical description should be at the same time explanatory. Phenomena should be so described that they are seen as instances of general familiar principles. In the most successful natural sciences such principles are uniformities, so constant and universal that they are termed laws of nature. In geology, however, their place is taken by processes familiar from many instances—folding, faulting, erosion—and recurrent properties of minerals, rocks, and soils. Historians are provided with a far more restricted equipment of generalisations. The recognisable behaviour patterns common to all societies are virtually those common to all mammals. Despite Spencer and Morgan few, if any, patterns are necessarily associated with evolutionary stages of culture. Still, ethnography does suggest that certain patterns are very frequently associated with specific basic economies—the pursuit of gregarious game, hoe-cultivation in woodlands, grassland or parkland pastoralism, plough cultivation, and so on. A reference to such a pattern is therefore to some extent explicative too.

6. But the historian has to explain the individual and possibly unique event. Uniformities of behaviour just will not do. The Marrists' appeal to "uniformities of social

evolution" while it seemed to make intelligible the development of each individual culture to which they applied it, completely failed to explain the differences between one culture and another and indeed obliterated or dismissed as irrelevant the differences observed. So it made prehistory unhistorical. To restore historicity it is needless and illegitimate to appeal to undemonstrable genetic factors or to a mechanical determination by the non-human environment on the one hand, or to the unpredictable genius of Great Men or interpositions by an inscrutable providence on the other. The individual and unique can be made intelligible by presentation as an historical conjuncture of general and familiar processes and patterns. Given the general character of Neolithic rural economy and knowing the relative productivity of different environments, it is clear that maximum yields would be obtainable in alluvial river valleys. Noting at once the transport facilities offered by such rivers and the well-illustrated tendency for gods or chiefs, credited with supernatural powers, to accumulate wealth, the observed accumulations in Egypt and Sumer appear logically inevitable. Then appreciating the economic prerequisites for the establishment of a regular machinery for the extraction, distribution and processing of metal, it ceases to be surprising that a true Bronze Age (which implies such a machinery) was achieved first in Egypt and/or Sumer; and finally the observed quite totalitarian concentration of wealth is disclosed as rational, justified as making the technological advance actual. Here without appealing to any written documents an archaeologist can offer a truly historical explanation. It is certainly incomplete and may not be correct, but it does illustrate what archaeology can offer history.

7. The Institute of Archaeology is peculiarly fitted to contribute to the fulfilment of all the above tasks, including even the first. For in all help is needed from disciplines outside the normal curricula of archaeological courses and employing equipment not regularly provided in archaeological institutes—botany, geology, chemistry, physics and zoology. Our Environmental Department constitutes a unique link with these branches of Natural Science and some of the Institute's students are required to master the rudiments of the relevant techniques. This requirement should be extended beyond students of Prehistoric Archaeology to those of Classical, Indian, Roman and Western Asiatic, since, as I have insisted above, those techniques are no less essential in converting into history the data provided by these branches of archaeology—and other branches not yet covered by distinct Departments in London such as Anglo-Saxon. Nevertheless the future of archaeology lies, I believe, with the historical rather than the naturalistic disciplines. It is a source of history rather than of generalisations claiming the dignity of natural laws. No doubt the archaeologist is predisposed to a sort of materialism. A prehistorian may legitimately excuse his foredoomed failure to recapture "the thoughts and motives of his agents" by the plea that they do not matter; it is the results actually achieved that reveal the "objective will" directing the action and that have to be judged and justified. But every historian is really in the same plight or worse—for he may be taken in by the false and distorted imputations of the agents, their friends or their

enemies! More seriously, a prehistorian must be so materialistic as to rank the intuition of Reality achieved by a naked mystic through contemplation of his own navel as of incomparably lower historical value than say the discovery of Pythagoras' Theorem or its converse. And he will be a materialist too in assuming that the value system dominating American society today was at least included in that of every preliterate society. He cannot, however, logically be a complete materialist; for bits of dead matter become even archaeological data only in so far as they are expressions and symbols of human thought and volition, of ideas and purposes that transcend not only each particular embodiment in an archaeological datum, but also each individual actor or thinker being social and therefore eminently immaterial! Archaeology must achieve the status as an university discipline that now it so sadly lacks by integration with the historical disciplines. And thus it will in the end attain a more secure public position than can be earned by sensational finds and even witty wireless programmes.

I.X.57.

Notes on a Survey of Pre-Roman Archaeological Sites near Jerash

By Diana V. W. Kirkbride

During the summer of 1955, while engaged upon the reconstruction of the South Theatre at Jerash, such free time as fell in daylight was used to carry out a survey, on foot, of the area which lies to the east of the Jerash Valley from the Early Bronze Age site on the water-tower hill, which was discovered by Nelson Glueck,[1] to a point on top of the hill saddle just to the north of the Roman festival gardens at the springs of Birketein. In addition, the Stone Age site which lies along the low hill just to the east of Hadrian's Arch[2] was thoroughly examined and a small sounding made. It was hoped to continue this survey on the west side of the valley in 1956 but for political reasons this was not possible.

Site I. Abu Suwan

This site was first recorded by Mr. G. Lankester Harding, who mentions it in his guide book to Jerash (1948)[3]. It extends over a considerable area, running along the low, rocky hill which lies to the east of Hadrian's Arch, down the talus slope on the south end of this ridge and finally across the lower terrace which ends in a steep drop at the point where Wadi Jerash is joined by a small, deep wadi which flows in from the west. The whole of this area is literally covered with flint artifacts and waste flakes, and has been named, most appropriately, by the peasants who farm there, Abu Suwan, or Father of Flint.

Acheulian. Mr. Harding found six Acheulian hand-axes lying on the surface of the hill immediately to the east of Hadrian's Arch (Fig. 1*a*, *b*, and Fig. 2*a*, *b*). Although this area was carefully examined no other hand-axes were found there, but some large, rough flakes with a heavy patination were found in the vicinity by Professor Zeuner. On the other hand, another six Acheulian hand-axes were found by the writer lying fairly close together near a small ledge on the lower terrace. One of these was a pointed specimen of Middle Acheulian type (Fig. 2*c*); another was made from a dark grey limestone. In a field outside a large cave on the east side of the hill overlooking the Jerash

[1] N. Glueck, "Explorations in Eastern Palestine, III", *Ann. Amer. Schools Orient. Res.*, New Haven, **18-19**, 288 pp., 22 Pls.

[2] F. E. Zeuner, "Stone Age Exploration in Jordan, II", *Palestine Exploration Quarterly* (in Press).

[3] G. L. Harding, *Jerash*, Dept. Antiquities, Jordan, 1948.

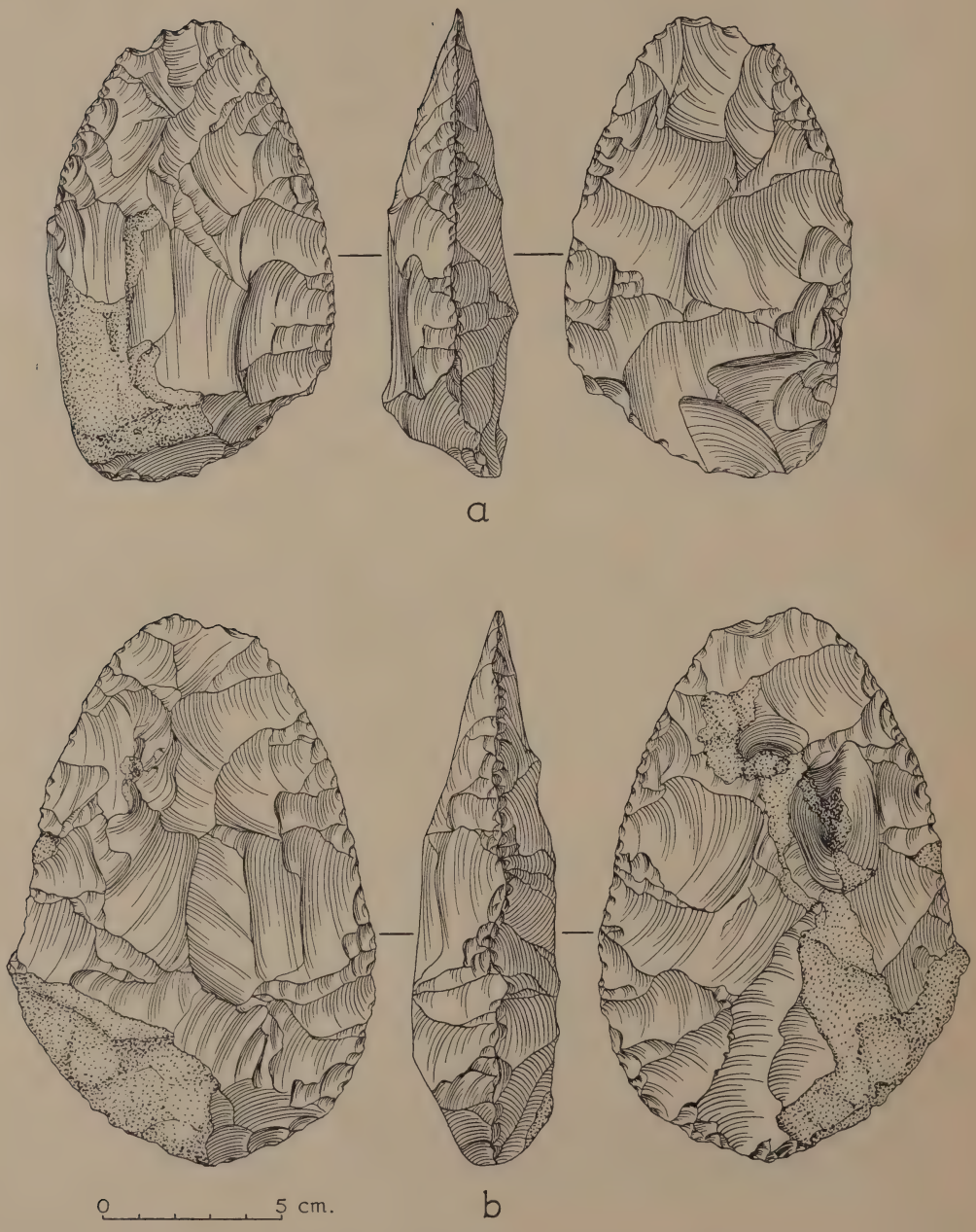


Fig. 1. Acheulian implements from Abu Suwan, near Jerash.

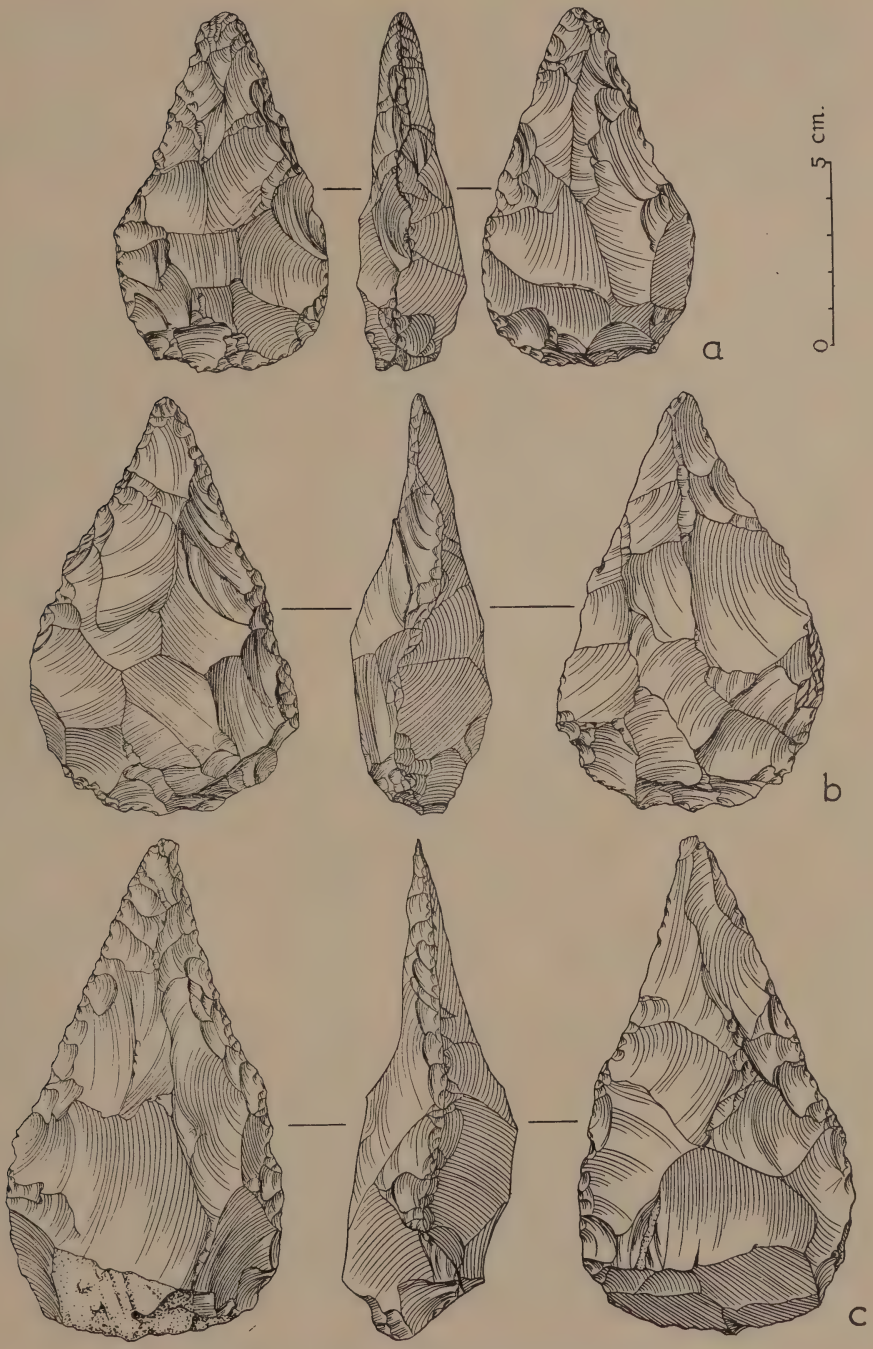


Fig. 2. Acheulian implements from Abu Suwan, near Jerash.

valley a number of large patinated flakes were found. This cave might repay excavation as it lies on the protected side of the hill, and does not seem to have been converted into either a tomb or a cistern as is the case with other caves in the area.

Levalloisian. From memory, a number of flakes with prepared platforms, and other flat Levallois-like flakes were found on the lower reaches of the talus slope as well as on the lower terrace.

Neolithic. The majority of artifacts from the site are of Neolithic type, and a very large number were collected. These included arrowheads, sickle blades, backed blades, burins, drills, cores and crested guide-flakes, a characteristic double concave scraper, some small bifacial chisel-like tools whose function is obscure, and various flakes and blades. In addition, there were a number of fragments of basalt querns, pestles and mortars, digging-stick weights and hammer stones. One small obsidian blade was also recorded. The implements are as follows:

Tanged arrow-heads (1). Large plain blade, triangular in section. Tang retouched bifacially. Shoulders fairly pronounced but not sharply angled (Fig. 3*a*).

Foliate arrow-heads (1). Pressure flaked bifacially (Fig. 3*b*).

Arrow-heads with tangs sloping gently into blade (5). One is retouched on each edge of the tang but plain in the centre (Fig. 3*d*). One is large, with a steeply triangular section; it is retouched all up the right side, and the tang is bifacially retouched at the end. It is pressure flaked part of the way up the left side of the blade and again at the tip (Fig. 3*c*). Three broken ones.

Single-shouldered points (3). One is unifacially retouched into a very fine, sharp point; the blade is plain but retouched into what is probably the shoulder of the tang on the right side, though the tang is broken (Fig. 3*f*). One is a plain blade with the tang retouched on the upper surface of the right side, joining the blade at a slight angle. The left side of the tang is steeply retouched on the inverse side and joins the blade with a definite shoulder. This is more plainly seen from the back (Fig. 3*e*). One is a blade retouched bifacially at the bulbar end; there is inverse retouch all down the right side, and inverse retouch into the tang, or single shoulder, on the left side. The tang is not on the bulbar end.

Bifacially worked "chisels" (5). These small artifacts are well represented, but their function remains rather obscure. Only one (Fig. 3*h*) has the tranchet flake and a working end broad enough to have been used as a chisel. The others are more pointed and have slightly upturned ends (Figs. 3*g*). They were possibly used as gouges.

Burins (4). Two angle burins on blades, one with burin facets at each end (Fig. 3*j*). Two *bec de flute* burins on blades which were re-used (Fig. 3*i*).

Double concave scrapers (3). These form a distinctive and well-represented group. They are all-purpose tools made on the ends of flakes. They are retouched all round and form a double spokeshave, narrowing to a waist in the centre. These waists may well

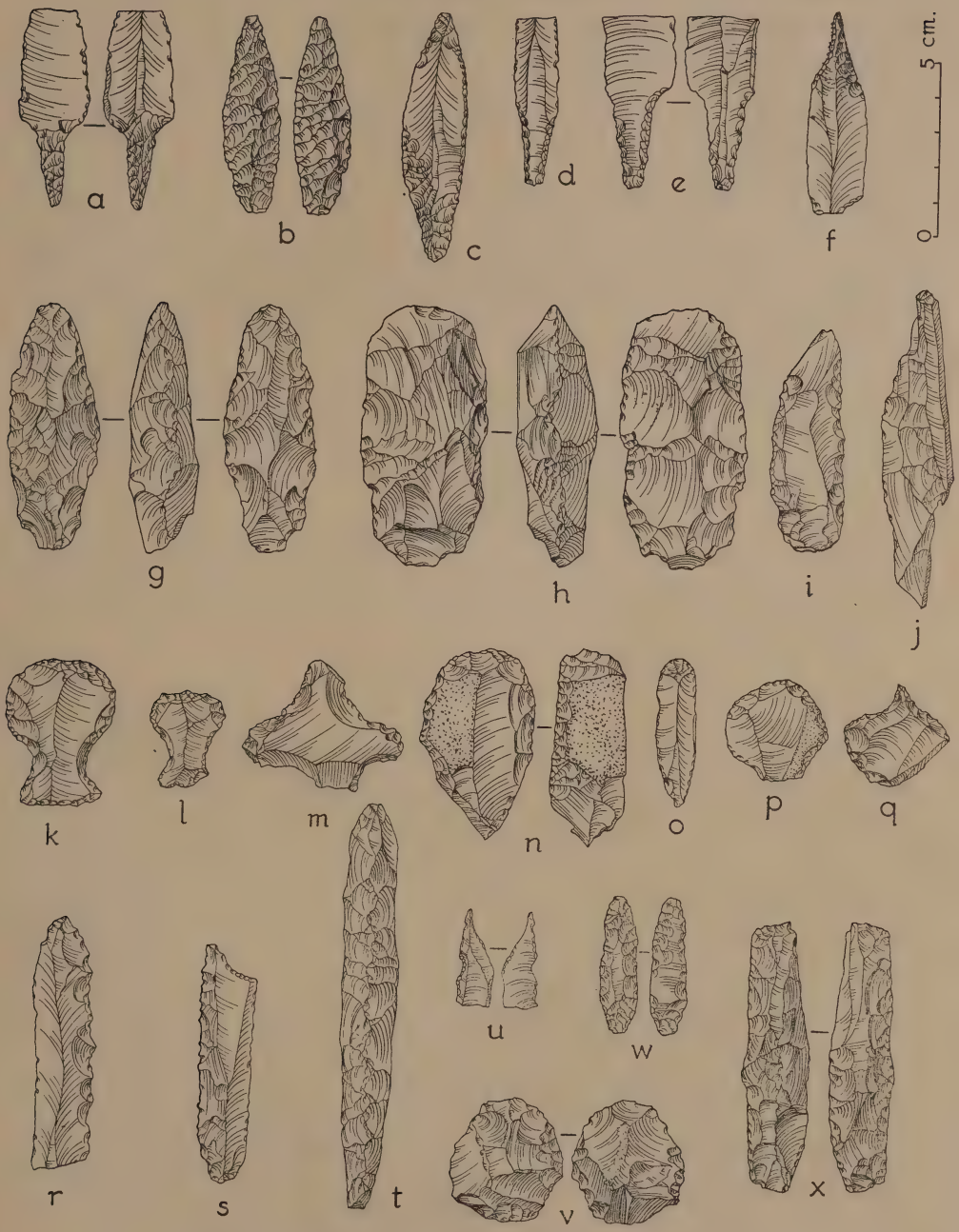


Fig. 3. Neolithic implements from Abu Suwan, near Jerash

have been used as an aid to hafting, in which case the implement's main function was that of an end scraper (Fig. 3*k*, *l*).

Multiple-nosed scraper (1). (Fig. 3 *m*).

End-scrapers (3). One is very steep, made from a split core (Fig. 3*n*). The others are on small blades (Fig. 3*o*).

Round scrapers (2). (Fig. 3*p*).

Point on a scraper (1). This is of the class named pseudo-awls by Stekelis (Fig. 3*q*).

Saw blades (6). (Fig. 3*r*).

Denticulated blades (2). These have very fine teeth. One has been retouched into an obliquely truncated point (Fig. 3*s*), and bears a high silica polish.

Notched blades (4).

Core trimming flake (1).

Crested guide flake (1). (Fig. 3*t*).

Awl or drill (1). This artifact is very finely made on a small blade, now broken. It is backed down the right side to an elongated oblique point, and has inverse retouch under the left side of the point. There is also a small nick under the stem of the point, retouched, which may be a delicate notch (Fig. 3*u*).

Cores (2). These are of the "cushion" type (Fig. 3*v*).

Bifacially pressure-flaked fragments (4). One is probably an unfinished arrow-head (Fig. 3*w*), and one a broken spear-head (Fig. 3*x*).

Unifacially pressure-flaked fragment (1).

Blades (9). Variously used and retouched.

Waste blades and flakes (24).

Obsidian blade fragment (1).

These artifacts are from a quick survey of the site carried out in 1954; the specimens obtained during the main survey and from the trial trench are still to be studied and reported. A description of the trench, however, can be given.

Trench A

A small trench about two metres square was sunk in the talus slope to the south of the limestone ridge.

The section of the trench was as follows:

1. Surface. Ploughland, brown powdery soil. A rendzina.
2. As (1), but more compact and containing white flecks. Ca-horizon of the rendzina.
3. Hard black earth with innumerable stones.
4. Lightish grey clay-like horizon, containing three very white hearth areas. The stones above these patches were blackened with carbon on their undersides.
5. Dark, brownish-red clay with white flecks.
6. Very red clay lying on bedrock in deepest corner.

The slope of the rock floor was not steep but it was very uneven. At its deepest point the trench was only 1½ metres.

Flint artifacts of a Neolithic character were found throughout all the levels down to (5), where there were very few; (6) was sterile. There was also a large number of waste flakes. Animal bones, both burnt and unburnt and largely broken for the marrow, were also found thoughout except in (5) and (6). There were, however, several good long bones, some horn cores, and two horned skulls, all in good condition. The bones and skulls are in the basement of the Amman Museum. In addition, there were several polished bone pins, and one long curved tooth pierced at the top for suspension. A few tiny fragments of pottery, of Roman or Byzantine type, were found, including one piece in level (4), but this may well be accounted for by burrowing animals, as apart from these, the finds were homogeneous throughout. It should be mentioned that a good many sherds, mostly of ridged ware, were spread over the surface of the whole area, but no earlier sherds were seen.

In the small area excavated, no less than three hearths were found, but no post-holes to indicate that some kind of structure once stood there. It may well be that these people were the bedouin of the Neolithic age who camped on this hillside because of its abundant water supply. It would be interesting to compare the artifacts from this site with those of the settled Neolithic peoples from Jericho, or from the smaller village sites in the Wadi Shaib and at Seyl Aglat in Petra. It is intended to publish these other finds, together with the sections, at a later date.

Site II. Dhahara el Beida

This site lies about 1½ miles north of Jerash on the new road to Dera'a, and about a mile from Jerash as the crow flies. It is situated astride the summit of the high ridge which marches on the eastern side of Wadi Jerash, and is slightly to the north of east from the Roman Festival Gardens at Birketein. The more southerly of Nelson Glueck's two Iron Age sites in this vicinity lies on top of a hill just to the north.

There does not appear to be any depth of deposit on this hill top; the walls of the houses were founded on the rock. Occasionally ground plans are visible in the soil: these are probably only preserved for one or two courses in depth. Flint artifacts and potsherds are scattered all over the area of the site, which appears to have been rather long and narrow. It was found that, in making the new road, bulldozers had completely razed a strip of the site where it runs beside the road, but in one part the machine had not bitten so deeply, and an enormous number of sherds, flints, maceheads (or digging-stick weights), querns, mortars and grinding stones, mostly of basalt, were found.

A selection of this material was taken to the Amman Museum. It is hoped to be able to publish the site more fully one day. The pottery was heavily coated with lime, and for this reason has not yet been studied.

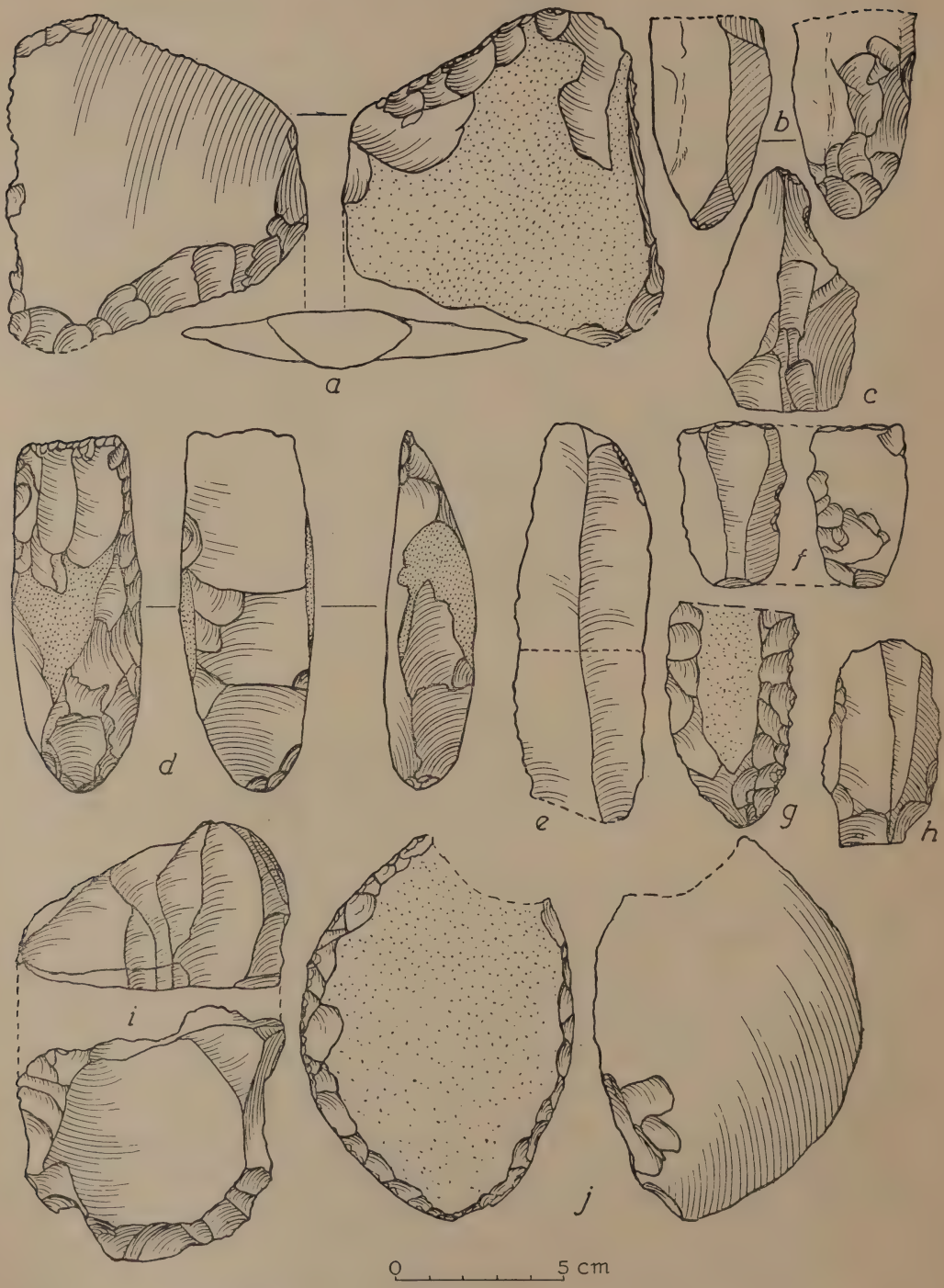


Fig. 4. Chalcolithic implements from Dhara el Beida, near Jerash

Fig. 5. Chalcolithic implements from Dhara el Beida, near Jerash

The pottery was fairly coarse and hand-made, levigated with white grits. The vessels were all flat-bottomed, but no mat-impressions were noticed. Loop-handles were the only type of handle, and not a single ledge handle was noticed from this site. Hole-mouths were common. A few sherds showed signs of colour through the lime incrustation, so these were probably band-slip vessels.

Although about three boxes of unsorted artifacts from the site are in the Amman Museum, only a few were sorted and sketched. These sketches at the moment are the only available evidence from the large amount of material that was collected.

The most characteristic of the flint implements are the chisels and fan-scrapers. There were many of the former in a variety of lengths and widths but all had the characteristic humped top when viewed from the side (Figs. 4*b*, *d*, 5*a*, C, D, 6*d*, *e*). The fan-scrapers were well made of tabular flint, often with the cortex left on, and worked all around the edge. The bulb on the underside was removed by flaking over it, and thus a very flat scraper was obtained. A number of these fan-scrapers were pierced, perhaps for suspension (Fig. 6*b*, *c*). A number of sickle blades, all rather small, were noted (Fig. 5*b-i*). These were backed, and had either small teeth or just use marks. All these had silica polish on them in some degree, although none carried a very high polish. There was a variety of other blades and scrapers (Figs. 4*c*, *e*, *h*, 5*y*, *z*, B). A large number of points was noted (Fig. 5*j -m*, *p-r*, *t-v*, A), and one well-made drill (Fig. 5*w*). One of the blade-flakes was struck from a prepared platform, and one tortoise-core was also found on the surface (Fig. 4*i*). There are probably other types of implements in the unsorted material at the Amman Museum.

This assemblage of flint implements is typical of the Ghassulian phase,[4] and there is nothing about the pottery that would be out of place in this period. The other stone objects, such as mortars, need further study. The only outstanding difference seems to be the absence of the Ghassulian pottery cones. The flint artifacts also compare well with older sites from Wadi Fara, from Tell Abu Matar,[5] and presumably with Nelson Glueck's recently found Chalcolithic sites in the Negeb.

Site III. Iraq el Bir

This site lies about half a mile to the south of Dhahara el Beida. In other words, it is about a mile north of Jerash on the new road, and on the summit of the high ridge. It lies to the east and south of Birketein. Like the other site mentioned above, this is a flat site. The road cuts through it, and destruction by the bulldozers seems to have been greatest on the east of the road. On the west, however, a certain amount of road work has been done by hand labour with shovels and wheelbarrows. Here some house walls may be seen, of which only a few courses remain. They were composed of dry stone

[4] A. Mallon, R. Koeppel and R. Neuville, *Teleilat Ghassul*, I, 193 pp., 72 Pls. (Rome, 1934); R. Neuville, *Teleilat Ghassul*, II, 140 pp., 113 Pls. (Rome, 1940).

[5] A. Perrot, "The Excavations at Tell abu Matar, near Beersheba", *Israel Exploration Jl.* (Jerusalem), **5**, pp. 17–40, 73–84, and 167–89.

Fig. 6. Chalcolithic implements from Dharar el Beida (*a–e*) and Iraq el Bir (*f–n*), near Jerash

walling. Large numbers of flint implements, sherds, and basalt mortars were found here, as well as numerous animal bones that occurred in the grey occupation level. Some small ruined tumuli are scattered nearby, and the bare rock shows many cup holes in places, and small channels leading to pits.

The main types of flint artifacts, particularly the chisels and fan-scrapers, are the same as those from Site II (Fig. 6*f-n*), as is also the pottery. Some of the flints were sketched, but the pottery remains to be studied. At first it was thought that these two sites were really one very long one, but on careful examination it was found that there is a definite and quite long gap between them. Here again it is hoped to publish the results fully later.

Site IV. The "Tumuli" Site

On top of the same high ridge as the two previous sites here described, and slightly to the north of the water-tower Early Bronze Age site found by Glueck (1937–39),[6] lies a site marked by a cluster of five very high cairns. These cairns form a landmark visible for miles around. Their height has been accentuated by having had piled upon them the stones from the surface of the fields in which they are situated.

One of the cairns, and probably all, has been opened. Through a hole in its southern face it is possible to see a rectangular chamber built of large slabs of stone set on edge. More than one stone was necessary for the length of the walls, but they were only the height of a single slab. Another cairn has the long side of its chamber visible at the north side.

Pottery and flint artifacts were collected from the fields and from the sides of the cairns. Unfortunately, these were neither drawn nor studied, so will only be mentioned briefly here in order to describe the site.

From a few brief notes made at the time, the pottery had simple incised decoration. At the junction of neck and body, incised parallel lines formed long detached curves, the end of each curve crossing the beginning of the neighbouring one. At the base of the neck of another vessel there were incised "goat's hoof" patterns. Short, stumpy ledge handles occurred, both plain and with incised chevrons.

Among the ground stone objects were noted three fragments of basalt "maceheads", and two other fragments of basalt, also two portions of large bun-shaped basalt grinders.

Among the flints were two chisels, one unfinished, 16 scrapers and points on blades, 10 round scrapers, 7 crested guide flakes, and 2 cores.

At the time the impression gained was that this site was Late Chalcolithic, but the material must be studied properly, and more be collected before a definite conclusion can be reached.

[6] N. Glueck, "Explorations in Eastern Palestine, III", *Ann. American Schools Orient. Res.*, New Haven, **18–19,** 288 pp., 22 Pls.

Palestine and Anatolia: A Further Note

By Peter J. Parr

The purpose of this note is to draw attention to two small objects from Turkish excavations which supplement the list of connections between Palestine and Anatolia during the third millennium B.C. given by M. W. Prausnitz in a recent *Annual Report*.[1]

The first object is the butt-end of a stone hammer-axe, and comes from the topmost Copper Age level (Area B, level 1) at Etiyokuşu, a few miles N.W. of Ankara.[2] The interesting thing to notice, on the very inadequate photograph published in the excavation report, is the incised decoration round the expanded portion of the axe near the shaft-hole (Fig. 1). This is almost identical with that on the broken axe from Ay, illustrated by Prausnitz.[3] The Etiyokuşu fragment provides, in fact, the closest parallel yet found to either of the Ay axes, much closer than that provided by the nearest examples from Troy I and II.[4]

Etiyokuşu is a typical Plateau site of the Anatolian Copper Age. The pottery from level 1 has close affinities with that of Alaca III and the Royal Tombs, and there can be little doubt that the axe fragment dates from about the third quarter of the third millennium, before the general destruction which seems to have affected many of these Anatolian sites.[5] It thus provides another check for the dating of the Palestinian E.B. III period, to which the Ay axes belong.

That the Etiyokuşu axe is not an isolated one is proved by the discovery at the same site of several more fragments of similar weapons,[6] but the published illustrations of these are too small and indistinct to show whether or not they are of identical type.

These finds do not materially alter the distribution pattern of Copper Age hammer-axes in Anatolia. Perhaps one may go so far as to say, however, that they tend to emphasise the Central Anatolian aspect of this pattern, as against the Aegean, and they certainly suggest that one, at least, of the Ay axes may have come from the Plateau.

The second object to be discussed here was found in one of the Royal Tombs (Tomb B.M.) at Alaca, and is therefore approximately contemporary with the Etiyokuşu

1 "Ay and the Chronology of Troy", in Institute of Archaeology *Eleventh Annual Report* (1955), especially p. 28.

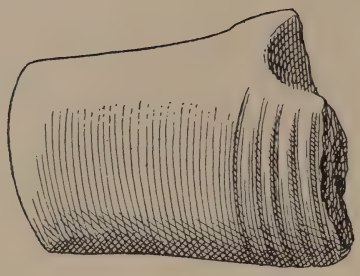
2 S. A. Kansu, *Etiyokuşu Hafriati Raporu*, 1937, Ankara (1940), p. 95, and Fig. 86 (No. EY 139).

3 *Op. cit.*, Pl. 1 and Fig. 1 (lower).

4 Prausnitz, *op. cit.*, Figs. 5 and 6.

5 Seton Lloyd, *Early Anatolia* (1956), p. 93, and Chart, p. xx.

6 e.g. Kansu, *op. cit.*, Fig. 86, Nos, EY 357, EY 269.



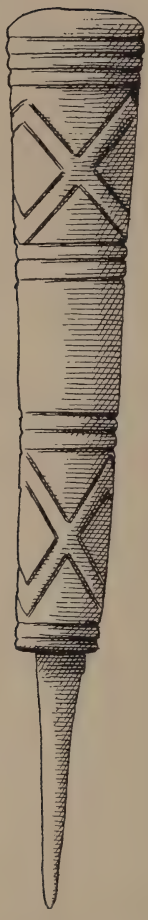


Fig. 1. (*above*) stone axe-fragment from Etiyokuşu

Fig. 2. (*right*) Nutal awl from Alaca, Tomb B.M.

(*Both* $\frac{1}{1}$)

and Ay axes. It is a copper (or bronze) awl, with an incised decoration of lozenges and horizontal bands on the handle (Fig. 2).[7] It is this ornament which commands our attention here, for although no similar metal object has been discovered in Palestine, bone and ivory handles with almost identical decoration are known from Ay and a number of other sites in the Near East, while closely related bone tubes come from the Cyclades and elsewhere.[8] On the whole these objects have a pronounced maritime distribution pattern, and Prausnitz suggests that the Cyclades were their original home.[9] Alishar appears to be the only site in Central Anatolia where tubes of bone have been

7 Arik, *Alaca Hüyük Hafriyati*, 1935 (Ankara, 1937), Pl. CCVII, No. Al.650.
8 Prausnitz, *op. cit.*, p. 22, Pl. 1, and Table A.
9 *Ibid.*, p. 26.

found, and none of these is decorated[10]; but the Alaca awl proves that this style in decoration was not unknown on the Plateau in the third millennium. It is difficult to decide whether the metal handle is decorated in imitation of the commoner Cycladic bone tubes, or vice-versa; or, indeed, whether they are not all only the result of a common tradition in ornament. In any case, the particularly close resemblance to one another of the Alaca and the Ay handles, despite the difference of material, should not pass unobserved, and may again point to the Anatolian Plateau, rather than to the Troad, as the main source of northern influence in Palestine during the E.B. III period.

[10] Von der Osten, *The Alishar Hüyük*, O.I.P. XXVIII (Chicago, 1937), pp. 91, 193.

Food Vessels

By A. M. ApSimon

In this paper I shall discuss several propositions relating to Food Vessel pottery. I shall not consider any other aspects of the Food Vessel cultures except those vital to my main theme, nor shall I touch upon distributions other than in the most general way. My aim is rather to examine the principles which underlie the development of the various classes of Food Vessel pottery, using individual examples to point my argument.

The propositions which I am discussing are not novel; hints for, or partial statements of most of them are to be found in the literature. This I cannot attempt to summarise here, and in any case the task has already been done for me by Childe[1] and others. These propositions do have a unifying *motif*, in that they spring from a single primary postulate: "that a careful examination of the *decoration* of Food Vessel pottery will provide essential clues to its proper classification". This kind of analysis has been most successfully carried out by G. F. Wilmot of York Museum, particularly so in respect of Beaker pottery, and I have profited greatly from his example. Thurlow Leeds, in discussing cord decorated pottery in England, was among the first to use this method of approach.[2]

Food Vessels can conveniently be divided into four main groups. Abercromby's classes[3] as elaborated by Childe and others were distinguished largely on the basis of form. The greater part of this work remains valid and is the basis of the grouping used here, but the finer subdivisions seem to have a purely descriptive value and are perhaps better forgotten.

The groups are as follows:—

(i) Yorkshire Vases
(ii) Southern English Food Vessels
(iii) Irish Vases
(iv) Irish Bowls.

(i) *Yorkshire Vases*

Miss Chitty has shown that this group appears first in Northern England and on the east coast of Scotland, with a subsequent spread westward to Ulster. The chronological position of this group is well established by barrow stratigraphy; Yorkshire Vases

[1] Childe, *Prehistoric Communities of the British Isles* (1952), pp. 119–34.
[2] Leeds, "Notes on Early British Pottery", *Antiq. Journ.*, **2**, pp. 331–8.
[3] J. Abercromby, *A Study of the Bronze Age Pottery of Great Britain and Ireland* (Oxford, 1912), hereafter cited as *B.A.P.*

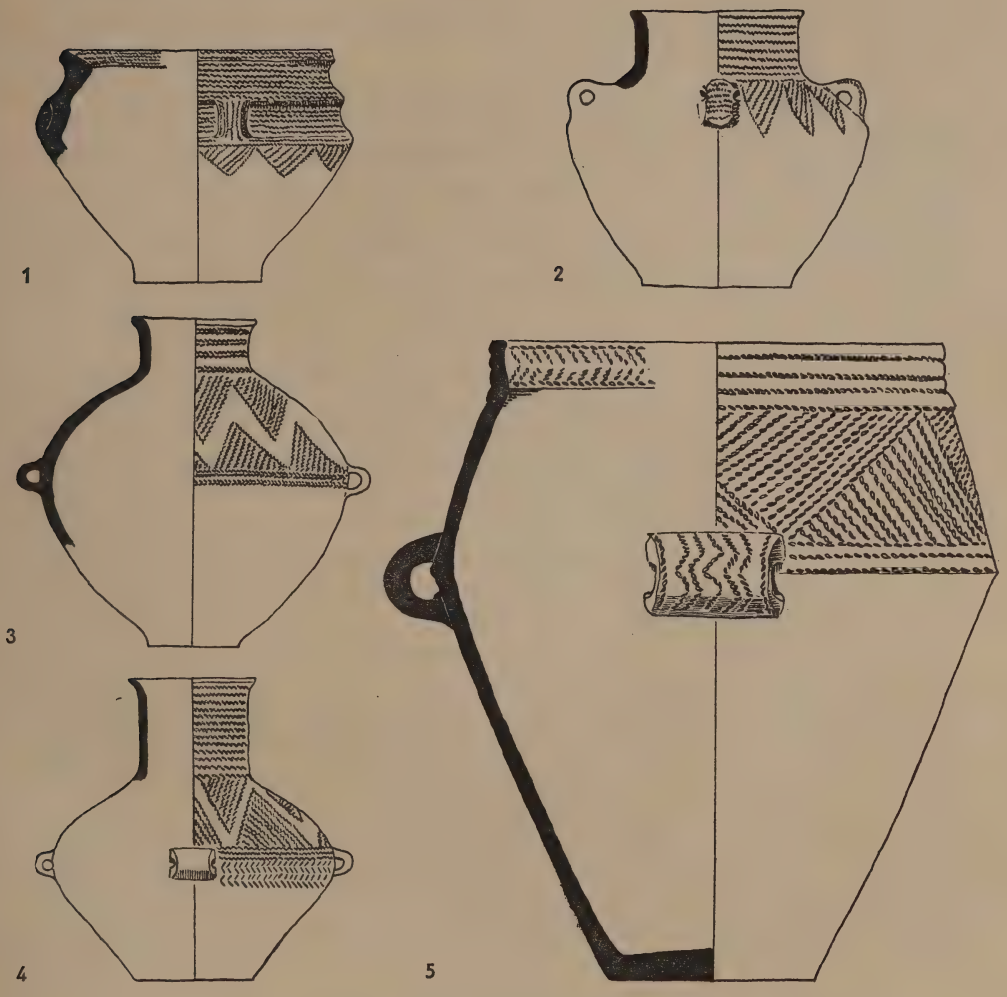


Fig. 1. Cord ornamented pottery
(1 and 2, $\frac{1}{4}$; 3–5, $\frac{1}{6}$)

1. Barrow 75, Garton Slack, E. R. Yorks.; 2. Ostraü, Kr. Bittefeld, Sachsen Anhalt; 3. Cröbern; 4. Bösenburg, Mansfelder Seekr. (Kr. Eisleben), Sachsen Anhalt; 5. Barrow III, Bloodhound Cove, Harlyn Bay, Cornwall.

Sources: 1. *B.A.P.*, I, Pl. xxx, 23 and Mortimer, *Forty Years' Researches*, Pl. 78, Fig. 574; 2–4 from photographs by Professor Sulimirski (Mus. Halle, Dresden and Halle respectively); 5. *Arch. Journ.*, 101 (1944), Fig. 6, B2.

being shown to be stratigraphically intermediate between Beakers and Middle Bronze Age Collared Urns. A link with dagger graves belonging to the early part of the Wessex Bronze Age has also been established.

Yorkshire Vases were studied by Kitson Clark, who isolated pottery which she believed to have a Corded Beaker background ("small pottery troughs, footed vessels, lids").[4] Her suggestion that Yorkshire Vase pottery might be the product of a combination of native Neolithic with intrusive, late Corded Beaker elements has by no means met with general approval. Most workers have preferred to follow Abercromby and R. A. Smith[5] in regarding the Yorkshire Vase as an essentially native development from Neolithic Peterborough ware.[6] When Miss Kitson Clark wrote, very little Peterborough material was known from Yorkshire, but subsequent finds have done something to remedy the deficiency.[7]

The suggestion that the perforated stops of the Yorkshire Vase might relate the type to the Thuringian amphorae with tunnel lugs, still lacks support. Although a small number of Food Vessels do have fine double plaited cord ornament[8] similar to that which is found on Corded Ware, only three of the Food Vessels figured by Abercromby show the vertical strap *motif* above the lugs[9] that might also be expected if Thuringian amphora ancestry were to be invoked. It may be significant that in southern England where the presence of pottery partly derived from the Corded Ware amphora can, in my opinion, be demonstrated, Food Vessels never have stops, these appearing only on Middle Bronze Age Urns.

(ii) *Southern English Food Vessels*

Miss Chitty[10] and Professor Piggott,[11] among others, have written about this group. They showed the existence in southern England of a Food Vessel culture which they related to that of Yorkshire and which could be shown by its associations to be broadly contemporary with the Wessex Bronze Age.[12]

Two varieties of southern Food Vessels have long been recognised. The first is the ridged variety corresponding to Abercromby's Types 2 and 2*a*, in which two or more horizontal ridges, which may bear simple incised or stabbed decoration (the emphasis seems generally, though not invariably, on the ridges rather than on the intervening grooves), are worked on the shoulder of the pot. Simple cord decoration also occurs.

4 M. Kitson Clark, "The Yorkshire Food Vessel", *Arch. Journ.*, **94**, 43–63.

5 R. A. Smith, "The Development of Neolithic Pottery", *Arch.*, **62**, 340–52.

6 Hawkes (*The Prehistoric Foundations of Europe* (1940), 319–23, 375–6) has been at pains to stress the "round barrow, single grave, beaker element."

7 Piggott, *The Neolithic Cultures of the British Isles* (1954), 384

8 E.g. *B.A.P.*, I, Pls. 29 f., 71, 73, 99, 105, 130–142, 229, 230.

9 *Ibid.*, 2, 50, 139.

10 In J. F. S. Stone, "An Early Bronze Age Grave in Fargo Plantation near Stonehenge", *Wilts. Arch. Mag.*, **48**, 357–70.

11 S. Piggott, "The Early Bronze Age in Wessex", *Proc. Prehist. Soc.*, **4**, 52–106; "The Badbury Barrow, Dorset, and its Carved Stone", *Antiq. Journ.*, **19**, 291–9.

12 Childe, *Prehistoric Communities*, 131–2.

Examples of this group were noticed by Sir Cyril Fox.[13] More recently, Stone[14] has suggested that these Food Vessels may be the expression of a Rinyo-Clacton Grooved Ware contribution.

Professor Childe's suggestion of an early, widely spread variety of ridged bowl Food Vessels[15] was queried by Frere in publishing the Needham Food Vessel.[16] The observations made below on the Lyles Hill pot suggest that Frere was correct in doubting whether the examples selected by Professor Childe belonged to a homogeneous group.

The second variety corresponds to Abercromby's Types 3, 4, and 4*a* (this seems to have been recognised by Ashbee,[17] in mapping as Type 3 examples classed by Abercromby as Type 4). These vessels have either a sloping or a concave neck, which may be quite elaborately cord decorated. Alternatively, decoration may be restricted to the shoulder, the rim, or the inner bevel of the rim, generally taking the form of incisions, stabs, or small cord "maggots". A number are undecorated.

There is not enough evidence to show that any cultural division lies behind these varieties. A small number of vessels whose decoration suggests Beaker affinities should probably be separated from the southern Food Vessel group.[18]

Southern Food Vessels are well represented in Cornwall.[19] The study of the Cornish Ribbon Handled Urns made in connection with the newly discovered Middle Bronze Age pottery from Trevisker Round, St. Eval, leads me to believe that this class of pottery was in part the product of a Corded Ware intrusion eventually traceable back to Saxo-Thuringia. The features of this class of pottery (massive cord-decorated tunnel-lugs placed at the shoulder of a biconical pot, the use of familiar corded ware patterns and technical tricks such as the employment of double plaited cord decoration) inevitably recall the Corded Ware amphora[20] (cf. a striking example from Bloodhound Cove, Harlyn: Fig. 1, 5).[21]

This intrusion was possibly linked with the exploitation of Cornish tin, and was possibly responsible for the inception of Phase II of the Wessex Bronze Age, with which phase it can be shown to be contemporary.

Rhenish corded ware vessels related to the amphora have already been suggested[22] as parallels to an Early Bronze Age pot from Tynings Farm, West Barrow, Cheddar, Somerset.[23]

[13] In C. M. Piggott, "Excavation of Fifteen Barrows in the New Forest", *Proc. Prehist. Soc.*, **9**, 1–27.
[14] J. F. S. Stone, "Some Grooved Ware Pottery from the Woodhenge Area", *Proc. Prehist. Soc.*, **15**, 122–7.
[15] *Prehistoric Communities*, 119–20.
[16] S. S. Frere, "A food-vessel from Needham, Norfolk", *Antiq. Journ.*, **20**, 272–4.
[17] P. Ashbee, "The Great Barrow at Bishop's Waltham, Hampshire", *Proc. Prehist. Soc.*, **23**, 137–66.
[18] Examples from: "Somerset", *B.A.P.*, I, Pl. 29, 4; near Henley-on-Thames, *Antiq. Journ.*, **18**, 412.
[19] F. M. Patchett, "Cornish Bronze Age Pottery", *Arch. Journ.*, **101**, 17–49; **107**, 44–65.
[20] In general see T. Sulimirski, " 'Thuringian' Amphorae", *Proc. Prehist. Soc.*, **23**, 108–22.
[21] Patchett, *loc. cit.*, n. 19 above, B2.
[22] G. F. Wilmot, *in lit.*, 1957.
[23] To be published by Dr. Herbert Taylor in *Proc. Univ. Bristol Spel. Soc.*

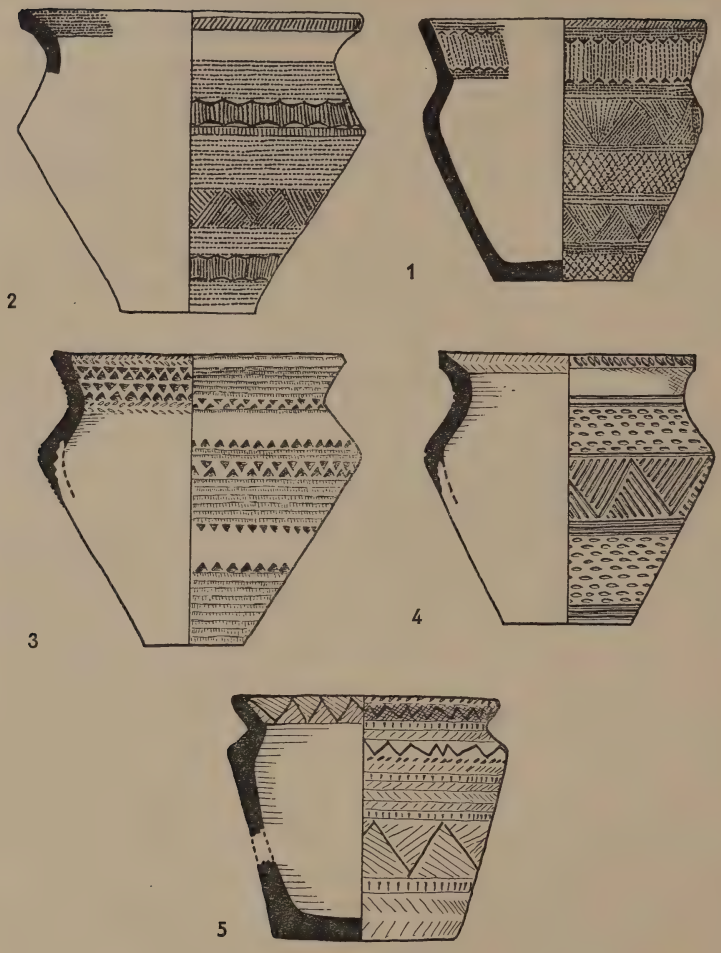


Fig. 2. Irish Vases ($\frac{1}{4}$)

1. Topped Mountain Cairn, Fermanagh; 2. Ballinglen, Ballinacor South, Wicklow; 3. Greenhills, Tallaght, Co. Dublin; 4. Lugnagroagh, Talbotstown Lower, Wicklow; 5. Kilskeery, Tyrone.

Sources: 1. *B.A.P.* I, Pl. XLV, 256 and *Proc. Roy. Irish Acad.*, Ser. **3, 4** (1896–8), p. 654, Fig. 4; 2. *Proc. Roy. Irish Acad.*, C **42** (1934), Pl. XIV, I; 3. *ibid.*, Ser **3, 5** (1898–1900), Pl. 13, 2; 4. *Journ. Roy. Soc. Ant. Ireland*, **63** (1933), Pl. VII, C; 5. *Ulster Journ. Arch.*, **2** (1939), 65 Pl. VI, C.

This intrusive element is superimposed on the Food Vessel culture with which it fuses. It is better not to call the resulting Cornish pots "Food Vessels", although the relationship is clear. It is instructive to observe that outside the south-western peninsula, the distribution of this Cornish "Corded Ware" coincides with that of Deverel-Rimbury globular urns. The pottery sequence at St. Eval, which is based on stratigraphy, gives me strong reason to believe that here is the explanation of the origin of the Globular urn.

(iii) *Irish Vases*

This name is given to Food Vessels of Abercromby's Hibernian Type E. Some workers have wished to relegate this group to the Late Bronze Age or even to the Early Iron Age but the application of our primary postulate will at once dispose of that objection.

The comparison of the decoration of the examples of Irish Vases figured here, with that of a range of North British "C" Beakers, shows that the correspondence is very close indeed.[24] The preference for comb ornament, the various *motives*, their arrangement and even such tricks as the disposition of a broad band of ornament on the inner bevel of the rim point unmistakably to "C" Beaker inspiration.[25] With this in mind the sharply angled profile of the Irish Vase appears as a copy or even as an exaggerated rendering of that of some angular "C" Beakers.[26] False relief used on Irish Vases to render the single chevron edges of broad bands of ornament is a borrowing from the Irish Bowl. The distribution of Irish Vases suggests that the area of contact was in north and east Ireland. Not surprisingly Irish Vases have been found in Scotland, there being two from an Overhanging Rim Urn cemetery at Brackmont Mill, Fife.[27]

In Ireland, one has been found with a dagger of Wessex I type, while more recently another was found associated with a segmented faience bead.[28] The hypothesis outlined above, as well as explaining the decoration and shape of the Irish Vase, provides a useful chronological instrument, in that it is reasonable to suppose that the more an Irish Vase resembles a "C" Beaker the earlier it is likely to be.

It is not surprising, therefore, to find that the vase from Kilskeery, Co. Tyrone, which Childe[29] has perceived to be degenerate compared to those with Wessex Bronze Age associations, is itself associated with a Pigmy Cup, an Encrusted Urn and an Irish copy of a Collared Urn.[30] The three vessels from Greenhills, Tallaght, Co. Dublin,[31]

[24] E.g. *B.A.P.*, I, Pl. XIV *et seq.*, 180, 214, 234, 283, 286*b*.

[25] Abercromby was thus very nearly right in calling the Mount Stewart vessel a beaker, and he rightly saw that its decoration was related to that of Scottish C Beakers (*ibid.*, 38, 39).

[26] E.g. *B.A.P.*, I, Pl. XIV *et seq.*, 163, 174, 179, 182, 213–14, 234, 269, 273, 286*b*.

[27] V. G. Childe and D. Waterston, "Further Urns and Cremation Burials from Brackmont Mill, near Leuchars, Fife", *Proc. Soc. Ant. Scot.*, **76**, 84–93.

[28] P. J. Hartnett and E. Prendergast, "Bronze Age Burials, Co. Wexford," *Journ. Roy. Soc. Ant. Ireland*, **83**, 46–57.

[29] *Prehistoric Communities*, 132.

[30] E. E. Evans and T. G. F. Paterson, "A Bronze Age Burial Group from Kilskeery, County Tyrone", *Ulster Journ. of Arch.*, **11**, 65–71.

[31] G. T. Plunkett, "On a Cist and Urns found at Greenhills, Tallaght, Co. Dublin", *Proc. Roy. Irish Acad.* (III), **4** (Pt. 5), 338–47.

Fig. 3. English and Irish Bowls ($\frac{1}{4}$)

1. Ridgeway Hill, Bincombe, Dorset; 2. Sionan, Horseleap, Westmeath; 3. Dun Ruadh, Tyrone; 4. Provenance unknown; 5. Lemonstown Barrow, Talbotstown Lower, Wicklow; 6. Greenhill, Kill, Co. Dublin; 7. Halverstown, Kilcallen, Kildare.

Sources: 1. *Arch. Camb.*, **80** (1925), 21, Fig. 8; 2. *B.A.P.* I, Pl. LIV, 394; 3. *Proc. Belfast N.H.P.S.* Ser. 2, I (1937); 67, Fig. V; 4. *Arch. Camb.* **80** (1925), 186, Fig. 6; 5. *Journ. Roy Soc. Ant. Ireland*, **63** (1933), 46–62 and *B.A.P.*, I, Pl. XLVIII, 311; 6. *B.A.P.*, I, Pl. XLVII, 299; 7. *Journ. Roy. Soc. Ant. Ireland*, **70** (1940), p. 60.

confirm this judgment and must belong to the Middle Bronze Age. Some of the Middle Bronze Age examples of the Irish Vase are cord decorated and show signs of contact with other cultural groups. This must not be allowed to obscure the fundamental Beaker contribution to the type.

The associations of the gold dagger pommel bindings found in the Topped Mountain Cairn burial and at Collessie[32] have previously been used to suggest that some Scottish "C" Beakers are contemporary with the earlier part of the Wessex Bronze Age. If correct, this removes any possible chronological objection to our derivation of the Irish Vase.

(iv) *Irish Bowls*

Within this class I include all remaining Irish Food Vessels, excepting only a number of hybrids and unclassifiables. My proposition about this class can be stated in a sentence: "Irish Bowls are directly derived from South British 'A' Beakers." By South Britain, I mean Southern England and the Bristol Channel area.

Once again one must first concentrate on decoration, temporarily neglecting the shape. Just as on "A" Beakers the decoration is normally rendered in comb technique, though incised or impressed lines tend to appear on developed, "provincial" or degenerate pots, again as on "A" Beakers.[33]

The bowls figured here have been chosen with a view to emphasising the "A" Beaker look of the decoration. Thus we have bands of *major* motives, running lozenges, chevrons, triangles, panelled or flag patterns. As on "A" Beakers these patterns are normally repeated on the upper and lower halves of the pot. Each band is flanked by marginal zones; clutches of horizontal lines, ladder patterns, herring bones. Even the simple rim decoration of transverse lines or linear chevron, and the base decoration can be matched readily on English and Welsh "A" Beakers.

The false-relief decoration is simply an easy way of obtaining a chevron, lozenge or flag pattern. Not only is it found on the continental Bell Beakers directly ancestral to "A" Beakers, but also occurs on these latter, firstly at Fifty Farm, Mildenhall, Suffolk,[34] and now at "Bos" Swallet, Burrington, Somerset (information from Dr. H. Taylor). Both in England and in Ireland it has been shown that the same tool has been used to produce the false-relief impressions and the comb patterns.

Bowl forms appear sporadically in most beaker groups. I would regard the example shown from Dorset as particularly relevant, because its decoration could equally well appear on a standard "A" Beaker (Fig. 3, 1).

[32] J. Anderson, "Notes on the Character and Contents of a large Sepulchral Cairn of the Bronze Age at Collessie, Fife. . . ." *Proc. Soc. Ant. Scot.*, **12**, 439–61.

[33] C. S. Leaf, "Report on the Excavation of two Sites in Mildenhall Fen", *Proc. Camb. Ant. Soc.*, **35**, 106–27.

[34] Leaf, *ibid.*

The Irish Bowls whose decoration is most "A" Beaker-like tend to be rather slab-sided bi-partite pots, in a way reminiscent of a squashed-down "A" Beaker. The simple rounded or flattened rims and slight foot are very like those of "A" Beakers.

The bulging upper and lower profiles of many of these pots with a waist constricted as though by a piece of string can be explained as providing emphasis for the major bands of ornament.

The raised cordons which gird the waists of Irish Bowls can also be explained by reference to the decoration. These bands are seen to be due initially to increased emphasis on the marginal zones of ladder or cognate pattern which flank the main bands of decoration. According to whether the two adjacent marginal zones belonging to the upper and lower main bands amalgamate or remain distinct the bowl will develop one or two waist cordons decorated with their appropriate marginal motif. Where two cordons appear, the space between tends to acquire its own band of major pattern and a tripartite scheme of decoration results.

This provides a satisfactory pedigree for the "tripartite bowls" described by Mrs Young[35] without the necessity of postulating an invasion from an Iberian or Mediterranean source. It is strange that Mrs Young makes no mention of British Beaker material in connection with this group.

At the same time the way is open for the proliferation of raised cordons or ridges which appears on some vessels and which, as on a pot from the Mount Stewart cairn[36] may come to dominate the ornamental scheme (Abercromby's Class C). The origin of these cordons may also be sought on pots associated with the "A" Beaker group (see below).

When contact is made in Ulster between Irish Bowls and immigrant Yorkshire Vases, the groove left between the two waist cordons is a convenient place to which to attach the shoulder lugs of the Yorkshire Vase.

Devolution of ornament may be expressed in several ways. The first noticed is by the narrowing of the major bands of decoration so that space is available for their repetition as well as for the multiplication of marginal zones. This leads to a pot decorated with a large number of narrow zones of simplified motives which may go hand-in-hand with proliferation of cordons or raised ridges.

A second way is by the simplification of the major zones so that the end product may simply be decorated with two broad zones of ladder pattern. It is this dead end that has been compared to certain North German gold vessels.

An interesting variant develops from the metopic or panelled scheme of decoration where false relief is used to "*sink*" the lozenge or six-sided decorated panels relative to the plain field. This scheme develops by the narrowing of the panels in the vertical plane, as shown by a Mount Stewart urn.[37] The end product of this process appears almost as

[35] A. Young, "A Tripartite Bowl from Kintyre", *Proc. Soc. Ant. Scot.*, **85**, 38–51.

[36] E. E. Evans and B. R. S. Megaw, "The Multiple-Cist Cairn at Mount Stewart . . .", *Proc. Prehist. Soc.*, **3**, Pl. IX, A.

[37] Evans and Megaw, *ibid.*, Pl. IX, C.

a new type,[38] another instance of the remarkable talent shown by these Irish potters in synthesising shapes and patterns of the Beaker repertoire in strikingly original fashion. Sometimes, as at Cush, Co. Limerick,[39] vessels of this kind may be taller than the normal bowl, retaining almost beaker-like height/diameter proportions.

Savory, in his recent study of Welsh Beakers,[40] has suggested a Bristol Channel point of arrival for "A" Beakers. While I agree with some of his conclusions I would prefer to take a wider view, and suggest a cross-Channel route into southern England, without defining too closely a point of entry. Wessex may be an area of primary settlement, but in any event there must have been a rapid extension to the Bristol Channel region, to East Anglia, and to the limestone uplands of Derbyshire.

Since the above was written, a further assessment of Welsh Beakers has been published by Griffiths.[41a] He has, in effect, re-stated the orthodox view, with which most of the above paragraph is in agreement. It is impossible to agree with his suggestion that English "A" Beakers might be derived from those of Group C. Consideration of the ornament of these two groups suggests that this is exceedingly unlikely. This is not the same as saying that "A" and "C" Beakers may not have a common origin among Rhenish beaker material.[41b]

It is, I think, worth noting that the kind of patterns found on English "A" Beakers also appear on some Spanish Bell Beakers which have similarly prominent necks[42]. Justification might even be found for an essay on "the dual nature of the Beaker colonisation of the Iberian peninsula".

From North Somerset the route is well mapped, first across to South Wales, then to the east coast of Ireland. Here there is a gap, the next find being that of the well-known Lough Gur "A" Beaker.[43] This at present stands alone in southern Ireland, for though "A" Beaker pottery is claimed from at least two sites, Lough Gur megalithic tomb,[44] and Ballyedmonduff,[45] it is difficult to accept the material published from these sites as true "A" Beaker.

It would be quite reasonable to suppose that the apparent scarcity of "A" Beakers in Ireland was due to their rapid transformation into Irish bowls, though such a supposition might at any time be rendered incorrect by new finds. However this may be,

[38] Cf. *B.A.P.*, I, Nos, 384, 414.

[39] S. P. O'Riordain, "Excavations at Cush, Co. Limerick", *Proc. Roy. Irish Acad.*, **45** (C), 83–181.

[40] H. N. Savory, "A Corpus of Welsh Bronze Age Pottery (Part I: Beakers)", *Bull. Bd. Celtic Studies*, **16**, 215–41.

[41a] W. E. Griffiths, "The Typology and Origins of Beakers in Wales", *Proc. Prehist. Soc.*, **23**, 57–90.

[41b] See Van der Waals and Glasbergen, "Beaker types . . . in the Netherlands", *Palaeohistoria*, **4**, 3–46; showing that none of the Dutch beakers can be ancestral to British "A" Beakers.

[42] A. del Castillo, *La Cultura del Vaso Campaniforme* (1928), Pl. 9, Pl. 77*a*, etc.

[43] S. P. O'Riordain, "Lough Gur Excavations: The Great Stone Circle (B) in Grange Townland", *Proc. Roy. Irish Acad.*, **54** (C), 37–74.

[44] S. P. O'Riordain and G. Ó h-Iceadha, "Lough Gur Excavations: The Megalithic Tomb", *Journ. Roy. Soc. Ant. Ireland*, **85**, 34–50.

[45] S. P. O'Riordain and R. De Valera, "Excavation of a Megalithic Tomb at Ballyedmonduff, Co. Dublin", *Proc. Roy. Irish Acad.*, **55** (C), 61–81.

the comparison of ornament made above leads me to believe that this mutation took place very soon after "A" Beakers appeared in England.

If we must localise the area where this happened, I would suggest that part of the east coast of Ireland once included in the province of Leinster, roughly from the mouth of the Boyne southwards.[46] From here the Irish Bowl spread through Ireland, contact being made in Ulster with the immigrant makers of Yorkshire Vases[47] and Irish Vases. Thus it is that these two latter groups come to use the false-relief technique on their pottery.

From Ulster the Irish Bowl makers crossed to Scotland. Irish Bowls from Scotland can be distinguished at sight from their Ulster cousins, this being apparently due in part to the influence of the Yorkshire Vase in Ulster. A fine and very well-known example is that from Kilmartin, Argyll.[48] Here a beaker-derived bowl has had perforated lugs added to an emphasised waist groove. The metopic decoration of a bowl from Larkhall, Lanarkshire, for which "A" Beaker parallels have been adduced,[49] suggests that the crossing to Scotland may have been effected at a relatively early date. Once in Scotland the Irish Bowl further influences the Scottish vessels of Yorkshire Vase type. This influence may be shown by the appearance of false relief on cord decorated vessels.

Miss Chitty[50] has discussed Food Vessels with Irish affinities found in Wales, and has shown that they relate to an advanced stage of Irish Bowl development after Yorkshire Vase elements had reached Ulster. False relief decoration has also been used by Kitson Clark and Chitty to isolate Irish derived or influenced Food Vessels in northern England.

A new discovery made in Derbyshire confirms in a most convincing way the conclusion implicit in our discussion above, that the early development of the Irish Bowl must run parallel with the *floruit* of "A" Beakers in England. At Swarkeston, near Derby, an Early Bronze Age barrow sealed an "A" Beaker dwelling site.[51] The beaker pottery includes some fairly late incised ware but there are also some good comb-decorated sherds. With this "A" Beaker pottery were shaerds belonging to an unmistakable Irish Bowl of mature type, with false relief, horizontal incised lines and low cordons, and at least one band of cross hatching in comb technique.

There is a single Irish Bowl of developed type from Cornwall (Treworrick, Mevagissey)[52] found associated with a large Middle Age Bronze Urn. An enlarged Food

[46] This is very probably an over-simplification. There are some very Beaker-like bowls in Ulster, as Fig. 3, 3. The Swarkeston find suggests a northern route from Derbyshire, whilst a Welsh or Scottish source has been suggested for the Largantea Beakers (I. Herring, "The Cairn Excavation at Well Glass Spring, Largantea, Co. Londonderry", *Ulster Journ. Arch.* I, 164–88).

[47] L. F. Chitty, "Notes on the Irish Affinities of three Bronze Age Food Vessels of Type I*a* found in Wales", *Bull. Bd. Celtic Studies*, **12**, 275–83.

[48] *B.A.P.*, I, No. 239.

[49] J. H. Maxwell, "Bronze Age Graves at Patrickholm Sand Quarry, Larkhall, Lanarkshire", *Proc. Soc. Ant. Scot.*, **83**, 207–20.

[50] *Loc. cit. supra.*, n.47.

[51] Information from the excavator, E. Greenfield.

[52] Patchett, *loc. cit.*, n.19, E1.

Vessel Urn of English type from Tynings Farm, South Barrow, Cheddar, Somerset,[53] carries false relief outside its rim. This may be regarded as an example of the occasional occurrence of this technique in Middle Bronze Age contexts in Southern England.

Two finds, one from Ireland, the other from Scotland, may be quoted to show that the Irish Bowl class must run on into the Middle Bronze Age. At Harristown, Co. Waterford,[54] a secondary urn cemetery included cinerary urns of south Welsh type, a Pigmy Cup, a quoit faience bead and a late-looking Irish Bowl. In a cairn at Greenhill, Balmerino, Fife,[55] a rather tall "bowl" was found associated with a Pigmy Cup.

The native contribution to both the Irish Vase and Irish Bowl class is difficult to assess. The Food Vessel pottery from the Great Circle at Lough Gur has been discussed from this particular point of view by O'Riordain,[56] who has stressed the Knockadoon Class II contribution. This conclusion is based very largely on the fabric of the vessels concerned. It is well to remember that most beaker habitation sites yield coarse ware, such as is seldom found with burials, and there seems little in the decoration or shape of of his Fig. 7, Nos. 1, 2, 6–8 and 9, that cannot be derived from an "A" Beaker source. The cord ornament and the incised lattice pattern of his Fig. 7, Nos. 9, 11, 12 and 13, suggested to him some other source, and certainly they can hardly be derived from either native Neolithic or "A" Beaker.

While it is possible that some of the Irish Bowl pottery may have been done by natives, there can be little doubt of the predominance of Beaker influence in form and decoration. Surprisingly enough, Irish Bowl pottery is far more like "A" Beaker pottery in fabric than most published accounts would suggest. Even the remarkable cordoned vessel from the central cist of the Lyles Hill cairn[57] can be matched exactly for fabric with a Cordoned Beaker from Swarkeston, Derby.

It is in the Middle Bronze Age sequel that the decoration of Encrusted Urns and Enlarged Food Vessels suggests comparison with Neolithic traditions.

Conclusions

In this discussion I have kept in mind the associations of Food Vessels as well as the details of burial ritual and anthropological information, which might bear on the problem. I do not believe that the evidence derived from these sources is inconsistent with my hypotheses, but I have preferred to let the argument from the pottery stand or fall on its own merits.

53 H. Taylor, "The Tynings Farm Barrow Group: Third Report", *Proc. Univ. Bristol Spel. Soc.*, **6**, 111–73.

54 J. J. Hawkes, "Excavation of a Megalithic Tomb at Harristown, Co. Waterford", *Journ. Roy. Soc. Ant. Ireland*, **71**, 130–47.

55 A. Hutcheson, "Notice of the Exploration of a Cairn . . . at Greenhill . . . Balmerino, Fifeshire", *Proc. Soc. Ant. Scot.*, **36**, 635–53.

56 O'Riordain, *loc. cit.*, n. 43 above.

57 E. E. Evans, *Lyles Hill, a Late Neolithic site in County Antrim* (Arch. Res. Pubs. (N. Ireland), No. 2: Belfast 1953), **47**, Fig. 18, 90.

The routes by which metal working was introduced to Ireland and the identity of its first practitioners have long been matters for debate. The connection of the Food Vessel cultures with the bronze industry and trade in bronze implements has been acknowledged since the pioneering work on distributions by Crawford, Fox and Chitty. Recently, Case has suggested the restoration of the Beaker folk to the role of prospectors and bronze workers.[58] In the light of my arguments above I would assent most heartily to this proposition, adding a special caveat in favour of the "A" Beaker branch. These people through their Bell Beaker ancestors had connections with the formative area of the central European Early Bronze Age. In Britain they can be linked through graves and hoards to an interesting variety of types of knife, dagger, axe and ornament. We have brought them rapidly to Ireland, perhaps following up a trail blazed by "B" Beaker groups. Here Beakers are transformed into Irish Bowls, themselves not devoid of associations with early Bronze Age metal types. With the appearance of the Irish Bowl on the mainland of Britain goes that of the now naturalised Irish metal types.[59]

This is a chain of circumstantial evidence, but it at least does have the advantage of economy of hypothesis in that the introduction of bronze and its early commerce are ascribed to cultures which can be directly connected with finds of bronze implements and ornaments.

In studying the changes in form and decoration of the pottery of related societies belonging to different regions of the British Isles, it is vital to observe the importance of the sea-crossings which separate these regions. To men in open boats, probably hide-covered curraghs, loaded with livestock and essential gear, these crossings can never have been mere "easy transitions". The further shore once reached, the initial stage of settlement would still be fraught with dangers and hardships. It would hardly be surprising if, when leisure was found to recommence pot-making, the product turned out a little different from that of the homeland.

Acknowledgements

This seems a suitable place to record my gratitude to the late Professor V. Gordon Childe for the very great help given and the never-failing kindness shown to me by him, both formerly as a pupil, and latterly as his assistant. This paper reflects in its modes of thought my enduring indebtedness to Professor Childe, of which it may be regarded as a token.

I have to thank Professor Sulimirski for much help with Corded Ware; Mr. E. M. Jope and Professor Stuart Piggott for reading the paper in draft. The paper has benefited greatly from their criticisms. Mr. B. Davison of Queens University drew Fig. 2, 3–5 for me.

[58] H. Case and H. H. Coghlan, "Early Metallurgy of Copper in Ireland and Britain", *Proc. Prehist. Soc.*, **23**, 91–123.

[59] For a recent find in support of this view, see R. J. C. Atkinson in W. Kirk and J. McKenzie, "Three Bronze Age Cist Burials in N.E. Scotland", *Proc. Soc. Ant. Scot.*, **88**, 1–14.

Anklets in Western Asia

By Olga Tufnell

Among the contents of the tombs excavated by the Wellcome-Marston Archaeological Research Expedition to the Near East between 1932 and 1938 at Tell ed-Duweir (Lachish), certain penannular bronze bangles, out of nearly one hundred examples, were strong enough to be subjected to chemical treatment in order to remove corrosion.

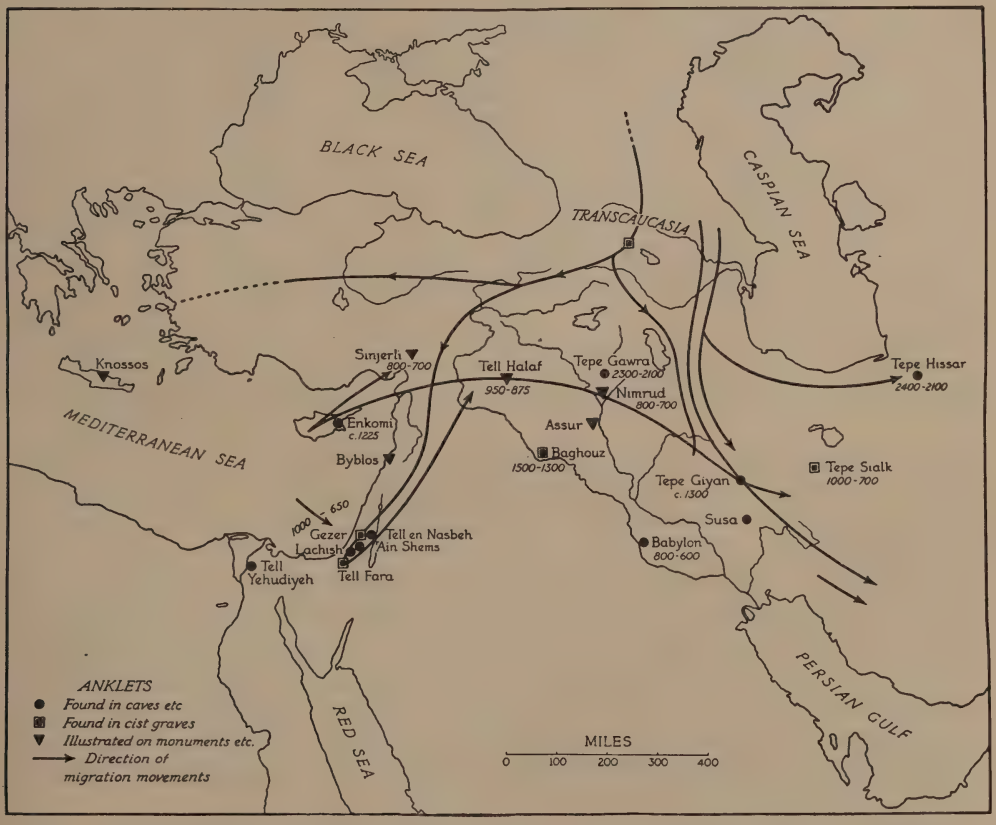


Fig. 1. Map of Western Asia showing chief sites where anklets were found or illustrated, with approximate dates. Direction of migration movements after König, *Alteste Geschichte der Meder und Perser, Der Alte Orient*, Bd. 33 (1934), 3/4, 10 and map.

As a result of this process, decorative incisions were found on one pair of bangles from Tomb 116,[1] so that once again work in the laboratory of the Institute of Archaeology has revealed detail previously hidden beneath the corrosion of centuries.

The decoration of the two bangles consisted of roughly-scratched bands enclosing chevrons filled in with dots. I have to thank Mrs. Fay Duffell who drew the best-preserved example here illustrated (No. 1)* and who also weighed those bangles which were available in London. The decorated pieces are among the heaviest bangles from the

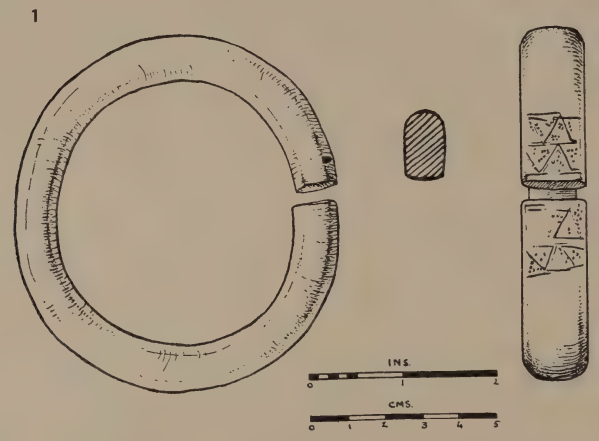


Fig. 2. One of two decorated anklets from Tomb 116, Lakish (*Lachish* III, Pl. 55: 2).

site, weighing 412 and 329 grammes respectively, a considerable burden to carry, even if only one pair were worn, though the evidence suggests that a set of four bangles at least was quite usual. The average weight for each of a set of four bangles works out at 347 grammes.

The illustration shows how the bangle was flattened in section on one side, like the terminal gold bracelets found in sets of five, and marked with notches to ensure that they were put on in the correct order of size, which were discovered at Tell el-Ajjul.[2] Those bangles of solid gold date from Late Bronze Age I (1600–1450 B.C.), and they represent the earliest occurrence of such ornaments in metal from Palestinian sites. Solid bangles were rarely found in the many tomb groups from Tell ed-Duweir which are dated to the following periods (LB II–III: 1450–1200 B.C.), and it was not until the first centuries of the Iron Age that bangles became common.

[1] Tufnell, *Lachish III* (1953), 190 ff., Pl. 55: 1–3.
[2] Petrie, *Ancient Gaza II* (1932), 6, Pls. 1–11.
* *Note:* Numbers refer to examples illustrated consecutively in Figs. 2–4.

Bangles found in the twelfth to tenth century cemeteries at Tell Fara were more often made of iron,[3] but by the end of that time, as seen in the earlier large tomb groups at Duweir, bangles were made of iron and of bronze. Most of the bangles were found in Tombs 116, 120, 218, 223 and 224, the contents of which date between 950 and 850 B.C. By the turn of the ninth–eighth century, personal ornaments made of metal were scarce in the later tombs, presumably because supplies had been diverted to the manufacture of weapons.[4]

Anklets or Bracelets?

The groups listed above contained communal burials, so disturbed that no order was discernible in the jumbled mass. For a set of eight bangles (marked bracelets on text Fig. 255), see Lachish III, while an anklet in position on the leg-bones is illustrated on Pl. 9: 3. The single grave 147 demonstrates that a pair was worn on each leg (Pl. 5: 2). There is therefore no doubt that anklets were in fashion at Lachish between 950–850 B.C., and heavy bangles possibly used for the same purpose came from contemporary tombs at 'Ain Shems and Tell en-Nasbeh.[6]

Setting aside the evidence from burials, from monuments and figurines, and from references in literature to bangles worn on the upper arm or wrist, what is known from the same sources about the wearing of anklets in antiquity?

It is not proposed to deal with anklets composed of threaded beads made up into flexible bands, and finished with a metal clasp, as worn by Egyptians throughout the history of the Nile Valley, but rather with solid metal bangles, rounded in section. It is not always possible to say from representations on the monuments which metal was employed, or whether the anklets were complete circles, had overlapping ends, or were penannular.

Anklets Depicted on Egyptian Monuments

The fragments of a limestone slab in the Cairo Museum (No. 3) dated on style to the end of the Old Kingdom period, include the lower part of a figure wearing a fringed robe, and what appears to be an anklet on the right leg. It is probably the only representation from an Egyptian source of an Asiatic so adorned, which can be ascribed to the third millennium.

Otherwise, pictures of anklets on Egyptian monuments are confined to the latter half of the second millennium. The earliest painted relief is that of the famous expedition to Punt, which took place in the early part of the sixteenth century B.C. The prince, his

3 Petrie, *Bethpelet I* (1930), 11–13, Pls. XXXII–XXXIX.
4 *Lachish III*, 389 ff.
5 *Op. cit.*, 204.
6 *Annual, Palestine Exploration Fund II* (1912–1913), **59**, Pl. XXVI; McCown, *Tell en-Nasbeh*, I (1947) 269 ff., tenth century to Byzantine.

wife and family greet the Egyptian envoy, and present him with gifts of gold. The fat wife wears bracelets on each wrist and similar pairs of anklets (No. 2), while her daughter—but not her sons—wears single bangles on wrist and ankles. The location of Punt is no more certain now than in 1877 when Mariette compared the armour which the prince wears on his right leg to the *dangabor* worn by the Bongo tribe, who inhabit the headwaters of the Nile.[7]

2

Fig. 3.

After Mariette, *Deir el-Bahari* (1877), Pl. 13.

The gold ornaments (circlets and necklaces) among the gifts presented to the Egyptians implies an abundance of that metal in keeping with the acknowledged source of Egyptian supply in Nubia, and as far south as Abyssinia.[8] That area would qualify as the place of origin for such ornaments, for they would only be made where metal was especially common.

However, it is a noteworthy fact that Egyptian representations of the so-called Nubians, wearing feathers in the hair, annular ear-rings, and heavy bangles, never show anklets. See, for instance, the decoration on the platform for the enthroned Amenhetep III on a wall painting at Thebes[9]; also the princes of Nubia with all their women adorned with many bracelets who are seen in the Tomb of Huy, Viceroy of Nubia in the reign of Tutankhamen.[10] It should therefore be possible to rule out Nubia, as the source of manufacture of such ornaments, though the unidentified "land of Punt" retains some claim on grounds of priority.

7 Mariette, *Deir el-Bahari* (1877), 29; *Voyage dans la Haute Egypte* (1893) II, 72, Pl. 62.
8 Reisner, Harvard African Studies, VI (1923), *Excavations at Kerma*, 282.
9 Davies and Gardiner, *Ancient Egyptian Paintings* (1936), Pl. LVIII.
10 Davies and Gardiner, *Tomb of Huy* (1926), Pls. XXVII–XXX.

Dating from the reign of the conqueror of Syria, Thothmes III, mid-fifteenth century, a wall painting from Gurneh shows a chieftain wearing anklets, painted the conventional colour for silver (No. 4). Decoration on the chariot of Thothmes IV consists of war scenes in which the king's enemies include individuals with marked Semitic features. The drawings are considerably reduced in the publications and some details are omitted, so that it is not clear whether bands at calf and ankle represent anklets or the hem of long pants. However, the people of Nahrin head the list of Northerners who were subdued. (Cf. Wreszinski, *Atlas* 2.1, Taf. 3, and Carter and Newberry, *The Tomb of Thoutmosis IV* (1904), 32, Pls. X–XII.)

The triumphal stele of Amenhetep III, early fourteenth century, shows on the left hand side the king in his chariot "prostrating Nahrin". Under the horse's hooves is a figure wearing a caped garment, a bracelet on the left wrist only, and single anklets on each leg (No. 6). An anklet worn by the leader of a group of foreigners, for which there is no explanatory hieroglyphic text, is depicted in the tomb of Hor-em-heb, now in the Leyden Museum (No. 5).

Three of the principal enemy figures on the late fourteenth-century reliefs at Karnak of Seti I's northern campaigns wear single anklets. Two of those grasped by Pharaoh himself are wearing them, and are presumably among "Great Chiefs of Retjnu (*Rtnw*) whom his majesty carried off as captives" (No. 8). In the battle with the Hittites (*Ht'w*), the largest enemy figure falls wounded from his chariot, and he also wears an anklet (No. 7).[11]

Mr. H. M. Stewart has prepared the drawings for this article taken largely from Wreszinski's photographs, and I am most grateful for the care he took in the presentation of the detail, which often differs in the various sources.

Rtnw is the Egyptian name for Syria and Palestine, and Sir Alan Gardiner has summarised the evidence which shows that *Nhrn* is synonymous with *Mtn* (Mitanni), at least from the reign of Thothmes III onwards, and that *Nhrn* lay to the east of the Euphrates (Gardiner, *Ancient Egyptian Onomastica*, Text, Vol. I, 173 ff.).

Evidence of Clay Figurines

Examination of the vast collection of clay figurines recovered from nearly every country of Western Asia is made easier by such works as *La Déesse Nue Babylonienne*, by G. Contenau (1914); *Frühe Plastik in Griechenland und Kleinasien*, by V. Müller (1929); *Clay Figurines of Babylonia and Assyria*, by E. Van Buren (1930); and *Palestinian Figures in Relation to Certain Goddesses known through Literature*, by J. B. Pritchard (1943).

The archaic type of nude goddess, with beak face and pierced ears (Pritchard's Type IV, p. 52), which died out in northern Mesopotamia, the centre of origin, early in the second millennium, continued later in Palestine, Cyprus and Egypt, and these figures were never provided with bracelets or anklets.

[11] For hieroglyphic inscriptions, see Breasted, *Ancient Records*, iii (1906), 50, 97.7; 71–72, 143. For discussion on anklet, see Müller, *Asien und Europa* (1893), 328; *Orientalische Literaturzeitung* (1909), Nr. 9, 381.

Fig. 4. Representations of anklets in Western Asiatic Art

3. Müller, *Egyptological Researches* (1906), Mesopotamians in Egypt before 2500 B.C., 10, Pl. II. For a similar garment and anklet worn at calf level on right leg, see Lajard, *Introduction à l'étude du culte public et des mystères de Mithra en orient et occident* (1847), Pl. XXXV: 7. 4. Champollion, *Monuments de l'Egypte et de la Nubie* (1835–1845), Pl. CLVIII, Gurneh, Tomb 4. Wreszinski, *Atlas zur altaegyptischen Kulturgeschichte* (1923), I ii, 247, 248; Meyer, *Photographische Darstellungen der Fremdvölker*, 743–47. 5. Leyden, Tomb of Hor-em-heb; Meyer, *op .cit.*, 743. 6. Petrie, *Six Temples at Thebes* (1897), 23, Pl. X. Cf. Wreszinski, *Atlas* 2 i, Taf. 36. 7. Wreszinski, *Atlas* 2 i, Taf. 45. 8. Wreszinski, *Atlas* 2 i, Taf. 36*a*. 9–10. Dunand, *Fouilles de Byblos* II (1954), Pl. CLXIV: 7638, 130–131. Reproduced by permission of the author. 11. *Berichte aus den Preuss. Kunstaml.* 51 (1930), 56 ff.; *Syria* (1931), XII, 48–57, Pl. XXII: 1. 12. Mackay, *Further Excavations at Mohenjo-daro*, II (1938), Pl. LXXV: 10. Clay figurine from lower levels, *c.* 2800 B.C., see Vol. I, 7, 538. 13. Mackay, *op. cit.*, Pl. CXXIII: 5. Bronze foot from upper levels, *c.* 2500 B.C., see Vol. I, 7, 538. 14. Evans, *The Palace of Minos* II, Pt. II (1928), 726, Fig. 454.

The nude goddess in Mesopotamia is infrequently provided with bracelets, and anklets seem to be almost unknown, except for isolated examples at Nippur and Ur.[12]

While it must be admitted that the greater number of figurines are incomplete, only a few out of more than a hundred and fifty examples listed from Palestine indicate that anklets were worn.[13] Fragments showing the lower part of the figurine only came from Strata E, D at Tell Beit Mirsim,[14] and Professor Albright was confident that "they were not only found in MB II context, but are also of the characteristic MB II paste".[15] They stand alone as the only evidence to suggest that the nude goddess had reached Palestine, or that anklets were worn, prior to the sixteenth century.

Moulded plaque figurines which date from the latter half of the thirteenth century indicate that bracelets and anklets were worn.[16] It therefore appears that these ornaments peculiar in Palestine at that time to the nude goddess were acquired on her journey through the Fertile Crescent, and that she herself was brought to Palestine in this particular form by people who were to settle there in the Iron Age, and who were to leave such ornaments in their tombs of the tenth and ninth centuries.

Anklets in the Third and Second Millennia B.C.

There are no anklets recorded from graves in Egypt or in Nubia, and all but one of the representations of foreigners wearing them seem to derive from Asia. It does not appear that anklet-wearing people lived in or passed through ancient Sumer. The Royal Cemeteries at Ur produced no anklets, though they contributed significant data about the introduction of metal bracelets in ED II. No fleece-clad figure on any monument wears either bracelets or anklets and the same applies to figures and figurines from all sites as far as Mari, though all these people normally went unshod.

The earliest occurrence of anklets associated with burials came from the southern end of the Caspian Sea at Tepe Hissar, where bracelets and anklets were introduced in Stratum II.

"It is strange", wrote the excavator, Dr. E. F. Schmidt, "that in the graves of Hissar IIA ornaments of this kind were absent, although the grey ware of period II had appeared. The bracelets and anklets of Hissar IIB are seemingly identical with those of the succeeding period, except for the greater number of coils present in some specimens. They

[12] For a dated example of the goddess wearing a bracelet, see Frankfort, Lloyd and Jacobsen, *The Gimilsin Temple and the Palace of the Rulers at Tell Asmar* (1940), Fig. 108*c*.

Mr. R. C. Haines informs me that among many unpublished terra-cotta figurines from Nippur there was only one example of the nude goddess wearing three anklets on each leg, which came from a Kassite level. Among the terra-cottas from Ur, Diqdiqqeh Cemetery (*Antiquaries Journal*, Vol. V (1925), Pl. VIII, I, bottom row), there is one of a headless nude female holding her breasts, who may wear three anklets on each leg. Sir Leonard Woolley dates the cemetery to the Third Dynasty of Ur, though he qualifies the statement by adding that "this archaeological period may well have been longer than the actual life of the dynasty" (p. 18).

[13] Pritchard, *Palestinian Figures in Relation to Certain Goddesses* (1943), Nos. 31, 32, 72, 98; see also Macalister, *Gezer II* (1912), 413.

[14] *Annual*, American School of Oriental Research, XVII (1938), Pl. 27: 8, 9.

[15] *Melanges Syriens I* (1939), 114–116, Fig. 1 *b. c.*

[16] e.g. *Lachish IV* (1958), Pl. 49: 4.

are made of thin or thick copper wire, forming rings which are almost closed, slightly overlapping or coiled."[17]

The reductions in date proposed by Schaeffer and Piggott for these strata at Hissar do not disturb their priority in relation to the introduction of anklets,[18] unless it proves necessary to go further with Ghirshman and bring the destruction of Hissar III down to the middle or even the end of the second millennium.[19] Ghirshman describes the transformation at Hissar from painted pots to black or grey-black pottery, which both in colour and shape were completely alien to the Plateau. He goes on to say that nothing is known of this new culture, nor do we know who brought it. He suggests that it came from the plains of Russian Turkestan, or possibly from the heart of central Asia.[20]

Moving perhaps along the Caspian shore, then south of Lakes Urmya and Van, the wearing of anklets is next seen at Tepe Gawra, where they seem to represent a passing interlude in burial custom, being almost confined to Stratum VI.[21]

At this point in time further evidence from burials is lacking, though it is important to note that contemporary Akkadian cylinder seals (*c.* 2300), despite their minute scale, represent mythical figures wearing an anklet on the right leg; but these are very rare.[22]

After a lapse of many centuries, when anklets do not seem to appear in graves or on monuments, the next part of our story may begin with Tepe Giyan, where four graves of level I contained bronze anklets.[23] Since the publication of the report, which dated level I between 1400–1200 B.C., Contenau maintained that level I should end in the twelfth century, while Ghirshman preferred the tenth. Schaeffer considered levels I and II together and dated them between 1550–1200 B.C.[24]

The anklets in level I came from earth graves near the surface, while towards the centre of the layer a group of grey-black pottery was found,[25] following the same sequence which Schmidt had observed at Hissar (p. 43), in the previous millennium, though this point might support a late date for the destruction of Hissar III. The bodies at Giyan were flexed, the anklets were of bronze only, which are points in common with the cemetery at Baghouz, though at that site the "dolmenic" tomb had been introduced.

Baghouz on the Middle Euphrates was excavated by du Mesnil du Buisson, who considered that the partly stone-built tombs covered by transverse slabs, but without a tumulus, represented the burial-places of an intrusive ethnic group in migration along

[17] Schmidt, *Excavations at Tepe Hissar, Damghan* (1937), 120.

[18] Schaeffer, *Stratigraphie Comparée* (1948), 451, Hissar III, 2300–2100 B.C.; cf. Piggott, *Prehistoric India* (1950), 63 note.

[19] Ghirshman, *Iran* (1954), 63.

[20] *Op. cit.*, 46.

[21] Speiser, *Excavations at Tepe Gawra*, Vol. I (1935), 11, f; cf. Schaeffer, *Stratigraphie Comparée* (1948), 97, Gawra VI, 2300–2100/2000 B.C.

[22] Frankfort, *Cylinder Seals* (1939), 131, Pl. XXIII*k*.; cf. references for Fig. 3.

[23] Contenau and Ghirshman, *Fouilles du Tépé-Giyan* (1935), Tombes 29, 32, 50, 51, all "Couche I" between 3 and 3m.50 from the surface, 14.

[24] Schaeffer, *Stratigraphie Comparée*, 456, 465; see also Piggott, *Prehistoric India* (1950), 61, who would date the final occupation of Giyan (or rather its use as a cemetery) about 1300 B.C. or later.

[25] Ghirshman, *Iran*, 70. See also note 23 above.

the Euphrates valley.[26] A woman buried on her side with knees flexed, wore bracelets of 6 cm. and bronze anklets of 9 cm. in diameter, sizes which we shall see compare with those of such ornaments at Sialk.

Covering perhaps the sixteenth to fifteenth centuries, the cemeteries at Giyan and Baghouz provide parallels among the female population for the representations on Egyptian monuments of anklet-wearing chieftains, and in these cases only single anklets were worn.

Thus, there is evidence from Old Kingdom Egypt, from graves on the northern border of Mesopotamia and from Akkadian cylinder seals to suggest that anklets were introduced in the latter half of the third millennium, with a second phase of popularity towards the end of the second millennium, represented by burials at Giyan and Baghouz, and illustrated in Egyptian monuments of the fifteenth and fourteenth centuries.

Turning to the Mediterranean, the east coast of Cyprus, which so often reflects the fashions of the mainland, only contributes a last atypical burial in Tomb 18 at Enkomi, where the woman wore heavy bronze anklets. Perhaps she was among the first settlers of a new wave of immigrants in the twelfth century, as Miss Du Plat Taylor suggests in a recent article.[27] At Byblos, a port on the Syrian coast, the nude goddess represented in bronze, wore her hair in a pigtail and two thick anklets; the date of this figurine from level I could be as late as 1200 B.C.[28] (Nos. 9–10).

Occasionally the nude goddess is portrayed on Egyptian monuments, where she first appears in the fifteenth century standing on a lion.[29] In this connection, the nude goddess, standing on the same beast, which surmounts a rein-ring in the Berlin Museum is interesting for the thick anklets and bracelets which she wears (No. 11). The rein-ring was republished by Moortgat[30] in 1930, and discussed by Rostovtzeff in the following year,[31] who asked when and how the god, master of animals of the Sumerian, Elamite, Babylonian and Hittite religion was replaced by a goddess. He considered that the transition probably developed in the Indo-European world, and he thought that if the rein-ring of Berlin were made in Mitanni, that country could have been one of those where at an early date the goddess with animals supplanted the god.

A rapid glance at the Aegean area establishes that anklets were worn as well as bracelets and that this fashion, the development of which is noted from the Early Minoan period onwards, was maintained until the end of Aegean culture and was adopted in the Mycenaean mainland during the sixteenth century, when it had its apogee.[32]

[26] Du Mesnil du Buisson, *Documenta et Monumenta Orientis Antiqui*, Vol. 3 (1948), *Baghouz*, 57 ff., Pl. LIII, LXII.

[27] Gjerstad, *Swedish Cyprus Expedition I* (1934), Enkomi, Tomb 18, 551 f., 558, Nos, 27, 28. See also du Plat Taylor, *Late Cypriot III*, *Palestine Exploration Fund Quarterly* (January–June 1956), 22–37.

[28] Dunand, *Fouilles de Byblos II* (1950), Pl. CLXIV: 7638, 130–131.

[29] Ward, *Seal Cylinders of Western Asia* (1910), Fig. 775, p. 258; Contenau, *La Déesse Nue Babylonienne* (1914), Fig. 72. Both authorities show the goddess wearing anklets, but on the source which they copy, Pierret, *Le Panthéon Égyptien* (1881), no anklets are drawn.

[30] *Berichte aus den Preuss. Kunstaml.* 51 (1930), 56 ff.

[31] *Syria* XII (1931), 48–57.

[32] Matz, *Die Agaïs* (Handbuch der Archaeologie), Pt. IV (1950), 254.

Evans remarked that except in the case of children, it is usual in Minoan art to see the feet wearing sandals or wholly encased in shoes. He considered it noteworthy that anklet-wearing youths (and maidens) went unshod. From the blue colour which they are painted Evans concluded that the anklets, like the armlets, were made of silver ". . . the blue anklets", he wrote, "are also very well marked on the feet of the Goddess". He also distinguished between the Minoan type of anklet which follows the lower contour of the ankle, and the Oriental kind which was a plain circle.[33]

The "Oriental" variety is also depicted at Knossos, where the "Captain of the Blacks," wearing a cap with horns, reminiscent of the horned figures on the cylinder seals (p. 44), wears anklets painted yellow, and presumably of gold.[34] The connection between horned caps and anklets seems to survive in Sardinia, where certain bronze figures of warriors appear to be wearing them.[35] Some signets of Minoan lapidary art show bull-fighters or dancers who wear several anklets.[36]

Anklets in the First Millennium B.C.

With the general collapse of Bronze Age civilisation in Western Asia and in the Aegean world, we encounter a period of three hundred years for which there are little literary or archaeological data.

It has long been accepted that the population of the Egyptian Delta received new elements as a result of the ethnic struggle of those times. From the twentieth dynasty onwards (*c.* 1205 B.C.), the cemeteries of Tell el-Yehudiyeh, for instance, contained the burials of individuals who were using iron. Some graves were covered with stone slabs forming a gabled roof, which gave them the shape of a Nordic house, a peculiarity already noticed among the Indo-European invaders of Italy.[37] Among the beads and amulets at Yehudiyeh there were cowrie shells, and anklets were worn.[38] During the eighth to seventh centuries, if the sand-pit graves of Goshen need no revision in date, bronze ear-rings and bracelets were associated with iron anklets on the legs.[39]

With the exception of the gabled roofs, this assemblage can be matched in southern Palestine. The rectangular, stone-lined, slab-covered graves at Tell Fara[40] are foreign to normal burial custom as a whole, and the same applies to the later so-called "Philistine" graves at Gezer.[41] The bangles from Lachish described at the beginning of this article

33 Evans, *The Palace of Minos II*, Pt. II (1928), 726, f., Fig. 454.
34 *Op. cit.*, Pl. XIII.
35 Pesce and Lilliu, *Sculture della Sardegna nuragica* (1949), Nos. 3, 4, 71.
36 See, for instance, a bull-fighter and a male dancer carved on Minoan signet rings, *Palace of Minos I* (1921), 432, Figs. 310*a*, *c*. It should be noted that "sacral knots" figure on both these Seals (cf. Figs. 308–9 on the previous pages). Their resemblance to the knotted girdles on Egyptian representations of foreigners (our Figs. 6–8) is striking.
37 Herzfeld, *Archaeological History of Iran* (1935), 15, 16. 33 ff.; cf. Ghirshman, *Iran* (1954), 83.
38 Naville and Griffith, *Mound of the Jew and the City of Onias. Antiquities of Tell el Yehudiyeh* (1887, 1890), 50, Pl. XVI: 17, 18.
39 Petrie and Duncan, *Hykesos and Israelite Cities*, BSAE XII (1906), 19, Pl. XIX B, C, D, Pl. XXI B.
40 Petrie, *Bethpelet I*, *BSAE* XLVIII (1930), 11 f., Pl. XXXIX A.
41 Macalister, *Gezer I* (1912), 292 f., Fig. 154.

stand between the two groups, though they were found in caves of earlier date which had been re-used.

From Kefrik in North Syria came a cremation burial group, now in the Ashmolean Museum at Oxford, which is the only one of its kind to include bangles, which are presumably anklets from their size.

The site which contributes most to our knowledge about the use of anklets is far removed from Palestine and Syria. It stands somewhat isolated from other excavated sites, nearly half-way between the south coast of the Caspian Sea and the ancient Persian capital of Persepolis. Since the excavator, M. Ghirshman, published his reports, the dates of Necropolis A and B at Sialk have been much discussed.[42]

In 1948 the situation was summarised by Schaeffer:[43]

	Ghirshman	*Schaeffer*
Sialk V, A	1200–1000	1400–1200
Sialk VI, B	1000–800	1250–1100

Current opinion seems to favour a return to an even later date for the end of Necropolis B.

Necropolis A contained ear-rings and bracelets among the ornaments but they were usually unbroken circles or had overlapping ends; no anklets were recorded. Necropolis B, on the other hand, contained many anklets, ranging between 9 and 13 cm. in diameter, and made of bronze or iron. Found in position, they were certainly worn by men and women alike. Each set was composed of one, two or three separate rings which were not completely closed. The bracelets from this cemetery measured from 4.5 to 7.5. cm. in diameter; that they were found *in situ*, like the larger anklets, establishes a useful guide when trying to distinguish between the two where other evidence is not available. The bracelets were made of silver or bronze, but never of iron. They were worn singly by men and women, and the silver ones were sometimes incised with linear designs.

The change in racial type from a preponderance of long-headed people to short-headed Armenoids at Sialk at the beginning of the first millennium, who for a period co-existed with their predecessors, who had used practically nothing but grey-black pottery, leads one to ask from whence these invaders came.[44]

If they arrived from the north-east then anklets might be expected to occur in Luristan, where there are indeed so-called "armlets" of comparable size to the anklets previously discussed, though Przeworski notes that they are few, and that they represented a type unknown at the time in which he wrote, not only in Luristan but in Western Asia in general.[45] He dated a particular armlet incised with triangles and parallel lines to the beginning of the first millennium, and recalled that some armlets found in Europe were similarly decorated at both ends.

[42] Ghirshman, *Fouilles de Sialk II* (1939).
[43] Schaeffer, *Stratigraphie Comparée*, 467–77.
[44] *Sialk II*, 185; Ghirshman, *Iran*, 70.
[45] *Archaeologia* lxxxviii (1938), 265, Pl. LXXIX*b*.

If on the other hand they followed the route southwards west of the Caspian Sea, traces of the invaders' presence could be expected in the Caucasus, and such is indeed the case. The custom of decorating arms and ankles with bangles was very common in the Bronze Age, according to De Morgan, and I am grateful to Professor Mallowan for drawing my attention to the graves which De Morgan discovered 100 kms. south of Tiflis. The excavator considered that the cemetery was occupied by two different ethnic groups living together over a long period. Among grave types were stone cist graves with built walls, closed by a stone slab, but apparently without a tumulus, and he illustrated a warrior's grave in which the body was flexed, the forearms covered with bracelets, while single anklets were in position on each leg.[46] There are items in the equipment of the "foreign" tombs, notably the slender toggle-pins (Fig. 293), which lead one to question whether the Iron Age in the Caucasus, where abundant supplies of metal were available, had not begun well before the first millennium.[47]

The bronze "money-rings" sometimes weighing more than 450 grammes (cf. p. 38) and made to uniform standards, existed in tombs of indigenous and foreign type.[48] In our enquiry, therefore, we have found a mining centre from whence this convenient way of carrying and displaying wealth may have spread southwards with the horse trade from the fifteenth century onwards.

Turning from the contents of tombs to representations on the monuments, it appears that with greater prosperity and abundant supplies of metal, the numbers of anklets represented increased, as they had done in the graves of individuals at Sialk, during the final phase of the Bronze Age and the first centuries of the Iron Age.

A crudely-carved orthostat of a woman from Tell Halaf wears three anklets on each leg, which show under her long fringed shirt.[49] The sculpture dates from the first building period of the Kapara palace at the site, attributed to mid-tenth century by Albright, though Moortgat and Frankfort ascribed all the buildings and sculpture to the ninth century. Mallowan, on the other hand, would favour a date in the last quarter of the ninth century or even later.[50]

Among all the barefoot figures represented, this woman and the enigmatic queen or goddess mounted on a lion are the only two wearing these ornaments, though the author of the text is doubtful whether it was not intended to represent an undergarment in the second case.[51] The eighth-century stele of a draped goddess or queen from Sinjerli who is barefoot probably wears anklets, unlike the majority of the figures who wear peaked shoes.[52]

[46] De Morgan, *Préhistoire Orientale*, III (1925–1927), 300, 301, Fig. 276 on p. 285.
[47] De Morgan, *Mission Scientifique au Caucase*, Vol. I (1889), 10.
[48] De Morgan, *Préhistoire Orientale*, III (1925–1927), 300.
[49] Von Oppenheim, *Tell Halaf*, Vol. 3; Opitz and Moortgat, *Die Bildwerke* (1955), 53 f., Pls. 34*b*; Albright *Anatolian Studies*, VI (1956), 84 f.
[50] Frankfort, *Art and Architecture of the Ancient Orient* (1954), 172 ff; Mallowan, *Iraq*, XIX, Pt. I (Spring 1957), 17, note 1.
[51] Von Oppenheim, *Tell Halaf*, Vol. 3, 116 f., Pl. 133.
[52] Von Luschan, *Ausgrabungen in Sendschirli*, Pt. IV (1911), Fig. 236, Pl. LIV.

Removed as booty to Babylon from an Aramaean site, the dolerite orthostat depicting a horned deity who wears peaked shoes and an anklet on the right leg is an anachronism which can be understood in the case of a mythical figure. The graves of the Babylonian capital were not on the whole rich in deposits, according to Koldowey, and the same general impression is gained from Reuther's publications of 239 graves in the inner city. An exception was Gruft 32, containing a man, his wife and two children, one of whom wore two silver anklets on each leg; the unusual nature of the tomb type in Kassite times led Reuther to suggest that there were Cretan-Mycenaean connections (WVDOG 47, *Die Innenstadt*, s. 179 f., Taf. 53–55). A cylinder seal from the group was classified as Kassite by Moortgat (Taf. 54*d*—Moortgat, VAR 557). Dated by Reuther to the same period, Lehmgrab 15 contained beads which would be normal in Palestine deposits of the sixteenth to thirteenth centuries, while the legs of one disturbed burial were decorated with three heavy iron anklets on each leg (Taf. 46, 47, s. 167). They are the first in this metal, and other examples came from Doppeltopfgrab 49, 50, 51, 69, 73 in sets of four or six, which may indicate that they should be dated later than—Reuther suggests—the last third of the second millennium (s. 185). A set of five bronze anklets on each leg (diam. 8 cm., present weight 1120 grs.) came from Topfgrab 54, one of three pot burials which should perhaps be dated *c.* 1000 B.C. (s. 194 ff.). A set of six came from Topfgrab 64 in the same metal, though in Topfgrab 69 and 73 the anklets were made of iron.

At Assur however, all the anklets were made of bronze or copper, and in only three cases did they exceed one or two in number. Single anklets came from Erdgrab 20 and Topfgrab 486, while three cylinder seals (Moortgat, VAR 506–508) exhibit un-Babylonian or Cappadocian traits and are dated about 1900 B.C.

Other pot-graves containing one or two anklets are Grab 151, 158, 493, 604, 625, while there was a group of these ornaments in Grab 745 buried in a sarcophagus. The vault, Gruft 34, completes the list of burials of the sixteenth to fourteenth centuries which contained copper or bronze anklets; all the rest seem to belong to the "neuassyrische" period dated by Reuther to 824–612 B.C. He noted the absence of such ornaments in the intervening period (*Die Innenstadt*, s. 216), a fact which tallies with their virtual absence on the female nude goddess figurine of the Ischtar Temples. Indeed, the cult of the temple founded by Tukulti-Ninurta I (1243–1207 B.C.) included the offering of frit models of buttoned boots.[53]

The transistory use of one or two anklets in a few graves of the Kassite period compares with what we have seen of anklet-wearing foreigners, also during the sixteenth fourteenth centuries, depicted on Egyptian monuments, where from the thirteenth century onwards they are no longer shown.

[53] Works consulted in the paragraphs on Babylon and Assur include the following: Koldowey, *Excavations in Babylon* (1914), 164 f. Fig. 103; 265; Fig. 187; 276. WVDOG 39, Andrae, *Die Ischtar Tempel in Assur* (1922), Taf. 55 w. WVDOG 47, Reuther, *Die Innenstadt von Babylon* (Merkes) (1926), WVDOG 58, Andrae, *Die Jüngeren Ischtar Tempel in Assur* (1935), for the boots, see p. 89 Abb. 74, WVDOG 65, Haller, *Gräber und Grüfte von Assur* (1953), Moortgat, *Vorderasiatische Rollsiegel* (1940).

In the palaces of the Assyrian monarchs during the ninth and eighth centuries, where all aspects of life and conquest were so amply illustrated on wall paintings and reliefs, anklets are never shown, though bracelets and armlets are common, as the Assyrians themselves and their near neighbours all seem to wear sandals or leggings and shoes.

Certain ivory panels recently found by Professor Mallowan at Nimrud are especially relevant. They may date from the eighth century B.C. and were published in the *Illustrated London News* for November 30, 1957, 934–937. Figs. 10, 12 and 13 are all related to the same subject, and each seated barefoot figure wears at least three anklets. The winged person (Fig. 11), however, is standing, and an analogy can be drawn between the Egyptian representations of anklet-wearing foreigners and the garment of the Nimrud figure, which dips at the back (cf. No. 3) and the curious knotted belt (cf. No. 5–8). "Whatever the true interpretation of these figures may be," wrote Mallowan, "it is clear that their source of inspiration must be North-West Syria, and perhaps too, South-East Asia Minor, for in the monuments of the Aramaean cities of T. Halaf, Sinjerli, and also at Malatia we find from the eighth century onwards many representations on which seated banqueting figures and the lotus tree become a favourite iconographic theme." Earlier finds at Nimrud include two fragments showing anklets, which Barnett attributes to the "Syrian style".[54]

A late Assyrian seal also illustrates the survival of older traditions, according to Frankfort, and the statue of the goddess Ishtar in full panoply of war wears triple anklets and is mounted on a leopard.[55] However, it would be incorrect to assume that the wearing of anklets represents a purely ritual function in the life of those times, for their appearance in some graves at Assur and Babylon suggests that they were also normal adornments for quite ordinary folk during the Neo-Babylon period.

Anklets in the Hellenistic and Roman Periods

From their furthest point south in the valley of the Two Rivers, which they did not reach until late in their history, comparisons for the anklets can also be found in the Mediterranean area. Anklets were moulded on statues of a women's shrine at Idalion in Cyprus, late seventh century;[56] an anklet occurs on a nude terra-cotta statuette of Aphrodite from the Palestinian coast, late fourth to third century.[57] There are striking comparisons for the penannular bronze anklets in the earliest group of cave-graves from the Meroitic cemetery at Faras, where these ornaments, exclusively worn by women, were more massive and highly decorated than ever before.[58] A representation of a nude

[54] Barnett, *Nimrud Ivories* (1957), Pl. LXXV, S. 217; Pl. LXXXIX, S. 294.
[55] Frankfort, *Art and Architecture of the Ancient Orient* (1954), 105, Pl. 119 (A).
[56] Ohnefalsch Richter, *Kypros, the Bible and Homer* (1893), Pl. LII: 8, 9.
[57] Iliffe, *Quarterly, Department of Antiquities of Palestine*, III (1934), 106, Pls. XXXII–XXXIII.
[58] Griffith, *Annals of Archaeology and Anthropology* (1924), XI, 144; cf. iron anklets from Jebel Moya, Addison, *Jebel Moya* (1949), 142 f., Vol. II, Pl. LX*b*.

warrior wearing a plumed head-dress, a bracelet and anklet brings us to the first century A.D. at Carthage.[59]

An unusual full-length bas-relief of a woman of Palmyra, dated on stylistic grounds to the third century A.D., shows that anklets were sometimes worn in this community.[60]

Ancient and Modern Words for Anklets

The early hymns of the *Rig-Veda* (*c.* 1200–1000 B.C.) contain the word *khādi* for anklet (*Rig-Veda* V. 54. 11) and it occurs again doubtfully in V. 53.4. In later Sanskrit literature the anklet is known by other names; I am indebted to Professor A. L. Basham for this information.

Aramaic papyri of a religious and economic nature concerning a Jewish military colony in Egypt during the fifth century B.C. mention a Persian official who, as a punishment for his misdemeanours against the Temple of the Jews, had "the anklet (*kbl'*) removed from his feet and his property confiscated".[61]

While the literary evidence suggests that certain Persian officials wore anklets as a mark of distinction, it is not confirmed by representations of this ornament on surviving monuments of the Persian court. Miss Vera Katrak tells me that women were seldom portrayed, and however richly adorned in other respects, burials of women did not include anklets.

Despite this negative evidence, the fact cannot be ignored that among the Iranian peasantry anklets were worn by men within living memory and are still worn by women of today. Words used include *pā avrajan* and *khalkhāl*; the last is a loan word in modern Persian and Turkish from the Arabic. Among the Semitic tribeswomen of the Nejd, South Iraq and possibly Syria, Professor Mallowan informs me that the wearing of anklets (*ḥijl*, *ḥajl* and other variants) is very common, though according to H. R. P. Dickson the true Beduin do not wear them,[62] and I cannot personally recollect that they were worn among the tribes in southern Palestine thirty years ago.

Conclusions

1. The wearing of anklets was a non-Sumerian custom; they are not found in graves or shown on monuments of southern Mesopotamia, though the latter depict the Sumerians as a people who went unshod.

2. The Sargonid rulers of the Akkadian period, who were likewise barefoot, did not wear anklets, though occasionally a cylinder seal of that time depicts a mythical figure who is wearing them.

[59] Dussaud, *Syria*, XXV (1946–1948), 214, Fig. 2.

[60] D. Mackay, *Jewellery of Palmyra and its Significance*, *Iraq*, XI (1949), 181.

[61] *Orientalische Literaturzeitung* (1909), Nr. 9,381. See also Cowley, *Aramaic Papyri* (1923), No. 30, 1.16 = No. 31 1.15 (duplicate copy); his note on p. 116 says "the meaning of *kbl'* [= fetter] must be a ring worn as an ornament". Professor G. R. Driver tells me that he knows of no other such use of this word; it is a genuine Semitic word and is found with the meaning of "fetter on the feet" in Psalms CV, 18; cf. CXLIX, 8. For another word, *akasim*, which appears to denote foot ornaments, see Isaiah III, 18.

[62] Dickson, *The Arab of the Desert* (1949), 156, 157.

3. Anklets first occur near the south-east corner of the Caspian Sea (Hissar IIB–III), also west of it in Caucasia (south of Tiflis), progressing southwards, via Gawra (Stratum VI), Baghouz (sixteenth to fourteenth centuries) and Giyan. During these centuries of Egyptian imperial expansion, their monuments include representations of the chieftains of the lands of Retjnu and Nahrin (the latter word equivalent to Mitanni), and of Hittite leaders, who are wearing anklets.

The Battle with the "Hittites"—an equestrian and chariot-using people, who appear to meet the Egyptians on equal terms—reopens once more the question of identity of these fourteenth century *Ḥt'w* with the Hittites of the Anatolian plateau, who were so different in appearance.[63] Indeed, it would seem that the chiefs of the nomadic Aramaean tribe of Baḥyân (*Baḫiānu*) who settled at Tell Halaf in the eleventh or tenth century called themselves "Hittites" just as the Aramaean princes of northern Syria were so termed by the Assyrians.[64]

4. Early in the first millennium anklets became common in a new type of cist grave associated with the penetration of Iran by a second brachycephalic (Armenoid) race (Sialk, Necropolis B). During the tenth to seventh centuries anklets appear on Aramaean monuments at Tell Halaf and possibly Sinjerli, though they are the exception rather than the rule. At this time they reached their apogee in the burial groups of southern Palestine (e.g. Tell en-Nasbeh, Gezer, 'Ain Shems, Lachish, Tell Fara) and they are also to be found in the Egyptian Delta (Tell Yehudiyeh).

5. It is noteworthy that there is little evidence of the fashion at Alalakh, Ras Shamra, Byblos (except for one bronze figurine), Megiddo or Tell el-Ajjul, suggesting that the routes which the anklet-wearing peoples followed avoided the Syrian-Palestinian coasts, and that they were not carried by sea trade. There is an isolated occurrence in Cyprus (Enkomi), associated with one of the last atypical burials in Tomb 18, dating perhaps from the thirteenth or twelfth century.

6. By the Neo-Babylonian period anklets had reached their furthest point south in Mesopotamia, where these ornaments of silver, bronze and iron were common in graves at Babylon (Merkes) and at Assur.

7. During the Hellenistic and Roman periods, anklets were customary only in the first phase of the Meroitic cemetery at Faras, separated from later phases by scanty grave-goods and different orientation of the body. There is no clear evidence that the rulers of the Meroitic kingdom depicted on the monuments so far published used anklets, and in a few doubtful cases it may be part of the sandal which is shown. Anklets occur sporadically in time and place in graves and on monuments of the Mediterranean world, dating from the last centuries of the pre-Christian era, and they reappear on the burial stele of the community at Palmyra in the third century A.D.

8. While it is beyond the scope of this article to enquire further into the origins of anklet-wearing peoples to the east, where there is some evidence of the practice at

[63] Gurney, *The Hittites* (1952), 2 f., 106 f.
[64] Albright, *The Date of the Kapara period at Gozan, Anatolian Studies*, VI (1956), 85, note 55.

Mohenjo-daro before the collapse of the Indus civilisation at the end of the third millennium (Nos. 12–13), the incidence of the custom at other Indian and North-West frontier sites before and after that event should prove rewarding. It may be significant that details of the Mohenjo-daro examples—the spot decoration on the clay figurine and the shape of the anklet on the bronze foot, which follows the lower contour of the ankle—are best matched by the anklets worn by the Minoans of Crete, dating from mid-second millennium B.C. (No. 14). That anklets are mentioned in the early hymns of the *Rig-Veda* shows that they were not unknown in the traditions of the Aryan peoples early in the first millennium, when they prove to be most common in Western Asia. By the eighth century, the custom had penetrated into Europe, where it formed a transitory phase in the Hallstadt culture.[65]

The trend therefore seems to move from the north-east to the south-west, gathering momentum in the early centuries of the Iron Age, and following certain natural highways as indicated by König, and his directional arrows have been incorporated in the sketch map (p. 37). It will be seen that the chief places where anklets have been found or represented (isolated occurrences of clay figurines wearing them are omitted), conform to the lines of migration routes during the first millennium.

Much of our evidence goes to show that the wearers of anklets were an intrusive people. It also appears that in several cases which we have examined, these people knew the horse, either as a decorative motif or because horse bits or trappings occurred among the grave-goods. At Tepe Hissar, the earliest site at which we have seen anklets, an alabaster horse and copper figurines of equine animals on wands testify to the knowledge of horses in Stratum III C.[66] At Gawra, terra-cotta representations of equine figures are almost confined, like the anklets, to Stratum VI.[67] At Giyan, horse bits and trappings were found, like the anklets, in Level I.[68] At Sialk, Necropolis B, there were horse bits in the tombs, horses were painted on the pottery, and were even engraved on cylinder seals, though the one rider shown on S. 810 seems to be wearing turned-up boots.[69] The Transcaucasian tombs south of Tiflis produced metal belts, one of which was engraved with a chariot drawn by two horses.[70] At Tell Fara in Palestine, horse bits came from more than one tomb in the cemetery which contained the anklets.[71]

The same association can be seen on the Egyptian scenes of foreigners, and the goddess on the rein-ring in Berlin, who wears anklets, is one of a group of such pieces on which horses form the central decoration. Occurrences could no doubt be multiplied but perhaps enough has been said to connect in some way the wearing of anklets to those people—Iranian, Indo-European, or Aryan or whatever they may prove to be—who

[65] Ebert, *Reallexikon der Vorgeschichte* (1926), Vol. IV/ 1, 162; Vol. XII, Pl. 91*b*; Sulimirski, *Kuttura Wysocka* (1931), Pl. 27: 29. I am grateful to Professor Sulimirski for these references.
[66] Schmidt, *Tépé Hissar* (1937), 188, Pl. XXXIII; 309.
[67] Speiser, *Tépé Gawra* (1935), 68, Pl. XXXV 1,*a*.
[68] Contenau and Ghirshman, *Tépé Giyan* (1935), Pl. 8: 11, 12.
[69] Ghirshman, *Sialk* II, Pls. XCIII–XCVII.
[70] De Morgan, *Prehistoire Orientale*, III, Fig. 297.
[71] Petrie, *Bethpelet* I (1930), Pl. XXXVIII, 239; XLI: 264.

brought the horse to Western Asia. The connection between the horse and anklets is reflected once again in an early hymn of the Rig-Veda,[72] where a magnificent passage describes the storm-gods coursing across the sky:

> When, as the Sun hath risen up, ye take delight, O bounteous radiant Maruts, Heroes of the sky,
> Your coursers weary not when speeding on their way, and rapidly ye reach the end of this your path.
>
> Lances are on your shoulders, anklets on your feet, gold chains are on your breasts, gems, Maruts on your ear.
>
> Lightnings aglow with flame are flashing in your hands, and visors wrought of gold are laid upon your heads.

[72] See page 51

Roman Domestic Ironwork, as illustrated by the Brading, Isle of Wight, Villa

By H. F. Cleere

1. *The Site*

The Roman villa at Morton, near Brading, I.O.W., was excavated in 1880 and 1881. The excavated remains comprised two ranges of rooms set at right-angles to one another; there were twelve rooms in the western range and about thirteen in the northern. It appears not unlikely that a further range of buildings may have existed to the south, and that the villa was of the courtyard type (e.g. North Leigh, Llantwit, etc.). The western range was the more luxurious, with mosaic pavements, hypocausts, etc., and must have been the living quarters of the owners. The northern range probably consisted of servants' quarters, store-rooms, workshops, etc.

The villa is sited half-way up the south side of a spur pointing east, and overlooks the sea; the low-lying land below the villa to the south, near Sandown, is covered by the sea at very high tides, and there are some indications that the sea came much closer to the villa site in Roman times.

The excavation was thorough by nineteenth-century standards, and was fairly carefully recorded, although very little account was taken of the chronological sequence of the construction. The fullest report was given in a paper read before the Royal Institution of British Architects in September 1881, by J. E. Price, F.S.A., and F. G. Hilton-Price, F.G.S.[1] As might have been expected, in view of the body to which the paper was read, the plan of the site is detailed and accurate, and the building materials are carefully described. There is a room-by-room description, and the finds are briefly noted in the account of the room in which they occurred.

No attempt is made at dating the villa, and the descriptions of dating evidence, notably the pottery, are perfunctory. The pottery finds include Samian, New Forest, Castor, and pseudo-Samian wares. The coins range from Domitian to Honorius; the bulk of the finds, however, were of the third century. It seems from this evidence alone that the villa was begun at the end of the second century or early in the third, and was occupied continuously until the very end of Roman rule. The ultimate fate of the villa is uncertain from the report; there appears to be some evidence of destruction by fire,

[1] J. E. Price and F. G. Hilton-Price, *A Description of the Remains of Roman Buildings at Morton, near Brading, Isle of Wight* (1881), London, John Davy.

and a few scattered human bones were found, but no complete skeletons. It seems reasonable to assume that the villa fell into disuse gradually during the fifth century, and was ultimately abandoned completely. Its fate may have been similar to that of the villa at Llantwit Major.

2. *The Finds*

The assumption that the site was abandoned is strengthened by the nature of the finds. Very little of value was found; all that was left was the normal small debris that is left behind at any *déménagement*, plus the "fixtures and fittings", such as hinges, door fittings, etc. Nevertheless, the ensemble is interesting in that it gives a very interesting picture of the small possessions of Romano-British villa-dwellers, and also of the constructional use of iron.

The present paper is a descriptive catalogue of the ironwork, which has recently been cleaned and restored by the Technical Department of the Institute. Unfortunately, since its excavation in 1880–1, this material has deteriorated considerably, and so it has not been possible in several cases to recognise items from the 1881 report. The catalogue is divided into three sections: *A.* Constructional ironwork and house fittings; *B.* Domestic objects and tools; *C.* Miscellaneous.

A. Constructional Ironwork

A.1. *Nails*

A very large number of nails was found, and nearly 150 were sufficiently well preserved to enable them to be studied. It was possible to recognise four main classes of nail, and two minor types.

Type I: A large nail, varying between 6 and 12 in. long. The shaft is square in section, and the taper is uniform from head to point. The head is in the form of a flattened or truncated cone or pyramid (Fig. 1). These nails were probably used for fastening main structural timbers (e.g. roof trusses, transoms, etc.); they would have been used either where the fact that the head was visible was unimportant, or where the heads were considered as decorative features. Some appear to have had their points broken off in antiquity, no doubt where they were used for fastening timbers whose combined thickness was less than their total length; one was bent through 90°, for a similar reason.

Three main sub-divisions were observed:

(*a*) Total length 12 in. Diameter of head $1\frac{5}{8}$ in. Max. thickness of shaft $\frac{1}{2}$ in. (4 examples).
(*b*) Total length 10 in. Diameter of head $1\frac{1}{2}$ in. Max. thickness of shaft $\frac{3}{8}$ in. (11 examples).
(*c*) Total length $7\frac{1}{2}$ in. Diameter of head $1\frac{3}{8}$ in. Max. thickness of shaft $\frac{3}{8}$ in. (7 examples).

Nails of this type have been found on other Roman sites, but they are not common; they are not described in general accounts of Roman ironwork,[2] and are not represented in the Silchester collection at Reading Museum. Like all Roman nails, they were forged.

Type II: A large nail, varying between 7 and 11 in. long. The shaft is square in section and tapers evenly. The head is flat in section, being the same thickness as the shaft in one dimension. Viewed laterally, it is semicircular or triangular (Fig. 2). Like the modern "French nail", this Roman type was used where the head was required not to show; inserted with the long dimension of its head

[2] E.g. R. E. M. Wheeler, *London in Roman Times* (London Museum Cat. No. 3), p. 77; John Ward, *Romano-British Buildings and Earthworks* (1911), p. 260.

Fig. 1. Nails, Type I ($\frac{1}{4}$)

Fig. 2. Nails, Type II ($\frac{1}{4}$)

parallel with the grain, it could be hammered in flush with the surface of the wood. Its large size indicates that it was used, like Type I, for joining heavy timbers; it has been suggested that the flush head would be an asset where plaster was to be applied above.

Three main types were observed:

(*a*) Total length 11 in. Breadth of head $1\frac{1}{2}$ in. (1 example).
(*b*) Total length 9 in. Breadth of head $1\frac{1}{8}$ in. (3 examples).
(*c*) Total length 7 in. Breadth of head $\frac{3}{4}$–$\frac{7}{8}$ in. (4 examples).

In addition, there was an isolated example of what may be a variant of this type (Fig. 2*d*); this is a spike $11\frac{1}{4}$ in. long, with a flattened head projecting to one side of the shaft only and triangular in cross-section. The taper was very slight, and the end more rounded than pointed.

This type of nail is common on Roman sites. It is listed by Ward[3] and is well represented at Silchester; examples were found at Newstead.[4]

Type III: A smaller general-purpose nail, corresponding to the modern clasp or cut nail, varying between 2 and $6\frac{1}{2}$ in. long (Fig. 3*a–e*). The head is round and flat, and the shaft square in cross-section. In its various sizes, this type of nail would find a multitude of uses, for hanging tiles, joining smaller timbers, fixing hinges and other fittings, etc.

3 John Ward, *op. cit.*, p. 260.
4 J. O. Curle, *A Roman Frontier Post and its People* (1911), Pl. LXVII, 34.

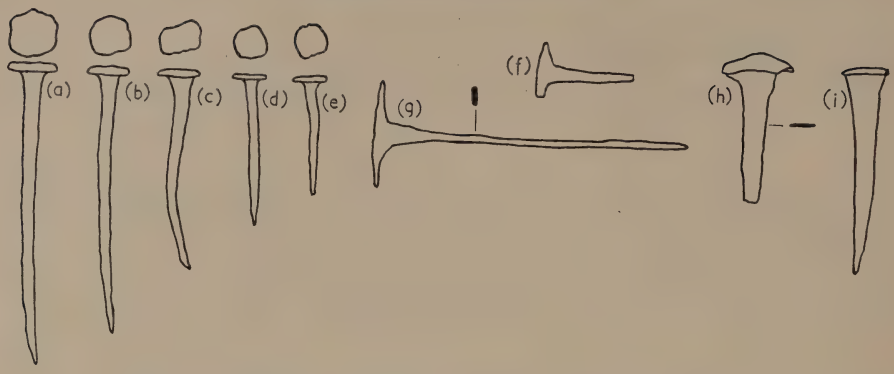


Fig. 3. Nails, Types III (*a–e*), IV (*f, g*), V (*h*) and VI (*i*), ($\frac{1}{4}$)

Five main types were identified:

(*a*) Total length 6$\frac{1}{2}$ in. Diameter of head 1 in. (2 examples).

(*b*) Total length 5$\frac{1}{2}$–6 in. Diameter of head $\frac{1}{2}$–1 in. (9 examples).

(*c*) Total length 4–4$\frac{1}{2}$ in. Diameter of head $\frac{1}{2}$–$\frac{3}{4}$ in. (11 examples).

(*d*) Total length 3–3$\frac{1}{2}$ in. Diameter of head $\frac{1}{2}$ in. (30 examples). (Some of the examples were headless, and may have been so in antiquity. The specimens were too heavily corroded to permit this to be distinguished as a separate type.)

(*e*) Total length 2–2$\frac{1}{2}$ in. Diameter of head $\frac{1}{4}$–$\frac{1}{2}$ in. (22 examples).

This is the most common type of Romano-British nail.

Type IV: A T-shaped nail or "holdfast", with a wide variation in size, used most likely for insertion into brickwork or mortar, or into end-wood.

Six examples were found, two of which are drawn in Fig. 3*f* and *g*. Details were as follows:

	Length of head and shaft	*Dimensions of Shaft*	*Length of head*
1	8$\frac{1}{2}$ in.	$\frac{1}{2} \times \frac{1}{4}$ in.	3$\frac{3}{4}$ in.
2	6$\frac{1}{2}$ in.	$\frac{3}{8} \times \frac{3}{16}$ in.	2$\frac{1}{2}$ in.
3	1$\frac{1}{2}$ in.	$\frac{1}{4} \times \frac{1}{8}$ in.	2$\frac{1}{2}$ in.
4	2 in.	$\frac{1}{4} \times \frac{1}{8}$ in.	1 in.
5	1$\frac{1}{2}$ in.	Badly corroded	1$\frac{1}{2}$ in.
6	1$\frac{1}{4}$ in.	Badly corroded	1$\frac{1}{2}$ in.

This type of nail is shown by Ward[5] and is well represented, especially in its larger sizes, at Silchester. Hawkes and Hull illustrate one example from Camulodunum,[6] and Curle[7] four from Newstead.

Type V: A single example was found of a flat-shafted ($\frac{1}{2}$ in. × $\frac{1}{8}$ in.) nail with a convex head, 1$\frac{1}{2}$ in. square (Fig. 3*h*). This was probably a decorative nail, for insertion into wood or plaster. No parallels have been found.

5 Ward, *op. cit.*
6 C. F. C. Hawkes and M. R. Hull, *Camulodunum* (Soc. Antiq. Res. Rept., No. XIV), Pl. CV, 26.
7 Curle, *op. cit.*, Pl. LXVII, 1–4.

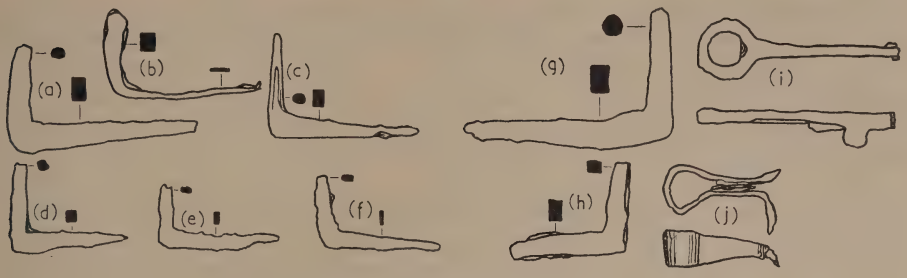


Fig. 4. Door fastenings ($\frac{1}{4}$)

Type VI: A single example was found of a heavy nail, $4\frac{1}{2}$ in. long, tapering abruptly from a cross-section of $\frac{3}{4}$ in. (Fig. 3*i*). The head is square and flat. Its robust nature suggests this was used for hammering into brick or stone. No exact parallels are known.

A.2. *Door fastenings (loops, hooks, etc.)*

The site produced a number of hooks and loops for fastening doors and gates. There were eight right-angled hooks and two loops (Fig. 4). The exact purpose for which these were used is uncertain. The hooks fastened into door frames and may have fulfilled one of two functions: either they were used for fastening, doors being secured by dropping loops or rings over the hooks, or they were parts of hinges, the doors or gates being equipped with rings which pivoted on them. It is safe to assume that hooks square in cross-section were used for the former purpose; round-sectioned hooks may have been used for either.

Four of the hooks shown in Fig. 4 (*b*, *e*, *f* and *h*) come into the first category, and the remainder into the second. It is likely that (*g*) may also be in this group, since it was found with a loop (Fig. 4*i*) hooked on to it. Similiarly, Fig. 4*h* was found with a loop (Fig. 4*j*) fastened to it.

The dimensions of the hooks are as follows:

	Shaft	*Hook*	*Thickness*
Fig. 4*a*	$3\frac{7}{8}$ in.	$2\frac{1}{4}$ in.	$\frac{3}{8}$ in.
b	$3\frac{1}{2}$ in.	$1\frac{7}{8}$ in.	$\frac{1}{2} \times \frac{3}{8}$ in. $\frac{3}{8} \times \frac{1}{4}$ in.
c	$3\frac{1}{4}$ in.	$2\frac{1}{4}$ in.	$\frac{1}{4}$ in.
d	$2\frac{3}{8}$ in.	$1\frac{3}{4}$ in.	$\frac{1}{4}$ in.
e	$2\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	$\frac{3}{16}$ in.
f	$2\frac{1}{2}$ in.	$1\frac{1}{2}$ in.	$\frac{3}{16}$ in.
g	4 in.	$2\frac{7}{8}$ in.	$\frac{1}{2}$ in.
h	$2\frac{1}{2}$ in.	2 in.	$\frac{3}{8}$ in.

Such hooks are common Romano-British equipment. Piggott[8] illustrated two from the Blackburn Mill and Carlingwark hoards, and there are many in the Silchester collection. Loops of the type represented by Fig. 4*j* are also common, and are figured by Piggott,[9] by Curle,[10] and at Silchester.

[8] S. Piggott, *Proc. Soc. Ant. Scot.*, **87** (1955), B28, C52.
[9] *Loc. cit.*, f.n. 8, B24, C62, C63.
[10] Curle, *Newstead*, Pl. LXVII, 10–13.

There seems little doubt that, whilst more elaborate equipment for fastening and hanging doors was used for the "best" rooms, these simple devices were normally used for servants' quarters, workshops, outhouses, etc.

A.3. *Hinges*

In all six iron hinges were found, either complete or fragmentary, at Brading; these are shown in Fig. 5.

The best preserved were those shown in Fig. 5*a–d*. These consist of two pairs of hinges, originally about 8 in. overall, secured by two nails on each leaf. They are formed from sheet $\frac{3}{8}$ in. thick, and revolve on an iron pin. All of them have nails (of Type III*d* or *e*) still in position.

The interesting fact about these hinges was noted by the excavators[11]: ". . . iron hinges were found . . . , two of which are opened out wide, and two are half closed. . . . At the moment of destruction doubtless one door was shut, as one pair of hinges was wide open, and one door was open, as the other pair of hinges indicated. . . ." Fig. 5*a*, *b* are the hinges of the closed door of the pair, and Fig. 5*c*, *d* represent the other.

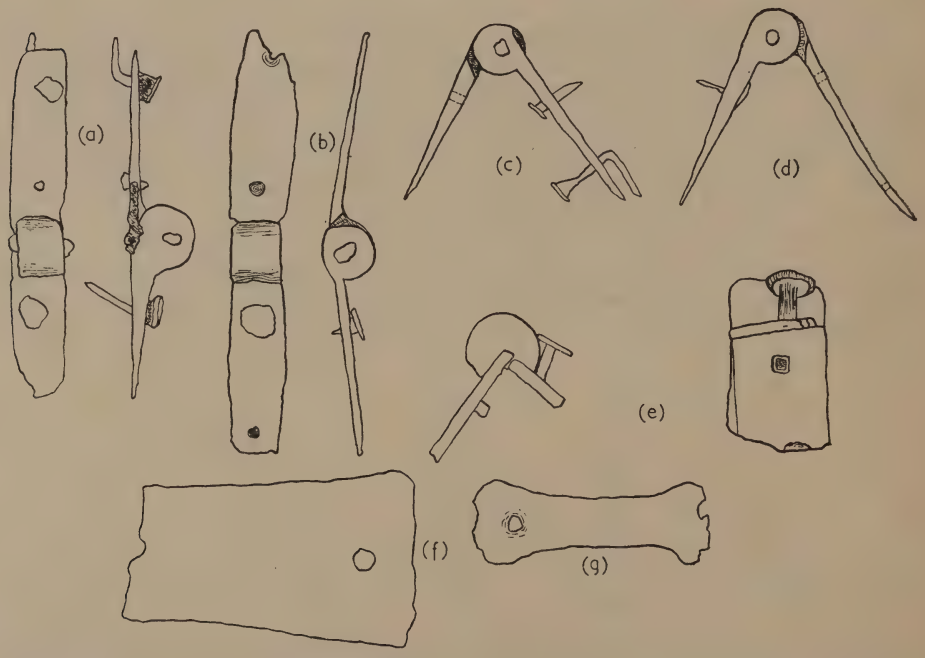


Fig. 5. Hinges (*a–f*) and fragmentary door-strap (*g*) ($\frac{1}{3}$)

A fifth hinge (Fig. 5*e*) is larger than the others shown—1.4 in. wide and 0.2 in. thick. Unfortunately, it is only fragmentary; however, by analogy with the two pairs of hinges, one might

[11] *Loc. cit.* f.n. 1 above, p. 21.

expect it to be at least 10 in. long opened out. It is a simpler type of hinge: one leaf has a socket in it, and the other has a long tongue, which is inserted through this socket and looped round. It is not impossible that this might have formed part of the lid of a chest.

Finally, a broken iron plate (Fig. 5*f*), 0.2 in. thick, $4\frac{1}{2}$ in. long and 2–$2\frac{3}{4}$ in. wide, was examined. The plate has one nail hole and shows evidence of another at its broken end. This is difficult to identify with any certainty, but it may well form part of a hinge, of the heavier type, illustrated by Fig. 5*e*.

Both types of hinge are represented at Silchester, and, according to the Brading excavators, the smaller type is plentiful at Pompeii.

Another iron object (Fig. 5*g*), $3\frac{3}{4}$ in. long and $\frac{1}{8}$ in. thick, probably belongs in this section; it is almost certainly a fragment of door strapping.

A.4. *Latch lifters*

The collection produced three undoubted examples and one less certain example of the latch lifter or "Celtic key". These bowed iron rods, with a flattened handle at one end, are common on Iron Age and Roman sites, but their method of use is still uncertain. Ward[12] suggests one ingenious solution. The Brading examples are shown in Fig. 6.

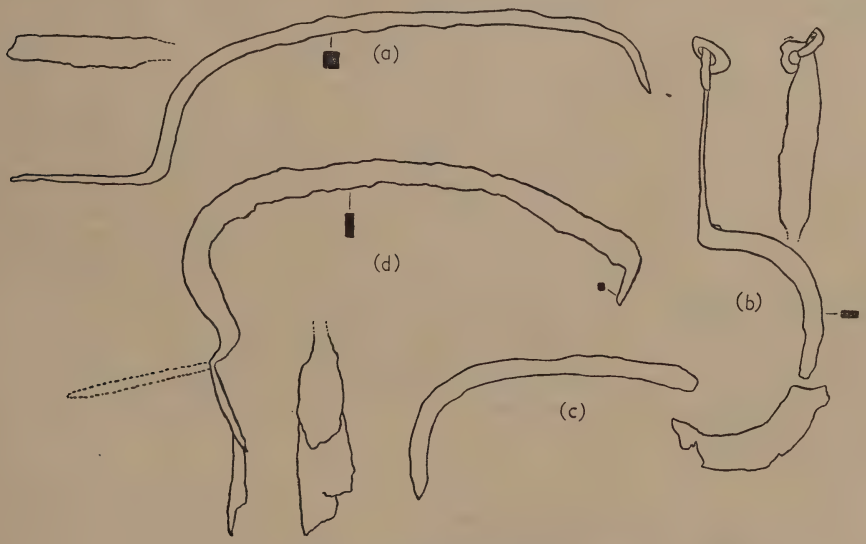


Fig. 6. Latch lifters ($\frac{1}{3}$)

(*a*) $10\frac{1}{4}$ in. long, square cross-section (same type found at Silchester, but with round cross-section; also Verulamium)[13].

[12] Ward, *Romano-British Buildings*, pp. 238–40.
[13] R. E. M. and T. V. Wheeler, *Verulamium* (Soc. Antiq. Res. Rept., No. XI), Pl. LXV, 21.

(*b*) 7 in. long, blade flat in section. Ring at end of handle. Described by excavators as a strigil. Similar examples were found at Silchester. The handle and the curve of the blade make it unlikely that this is a strigil.

(*c*) Blade only, 6 in. long. Circular cross-section.

(*d*) 7 in. wide, sickle-shaped. Flat handle, bent-over tip. This object has been described as a cauldron handle, but that is a rather doubtful ascription; the rounded and bent-over tip seems to be original and not the result of corrosion (cp. *Verulamium*, Pl. LXVI, 21). The handle has a sharp angle which is probably not original. If the handle is bent through 90°, as indicated by the broken line in Fig. 8*d*, the similarity of this to the other examples shown becomes greater.

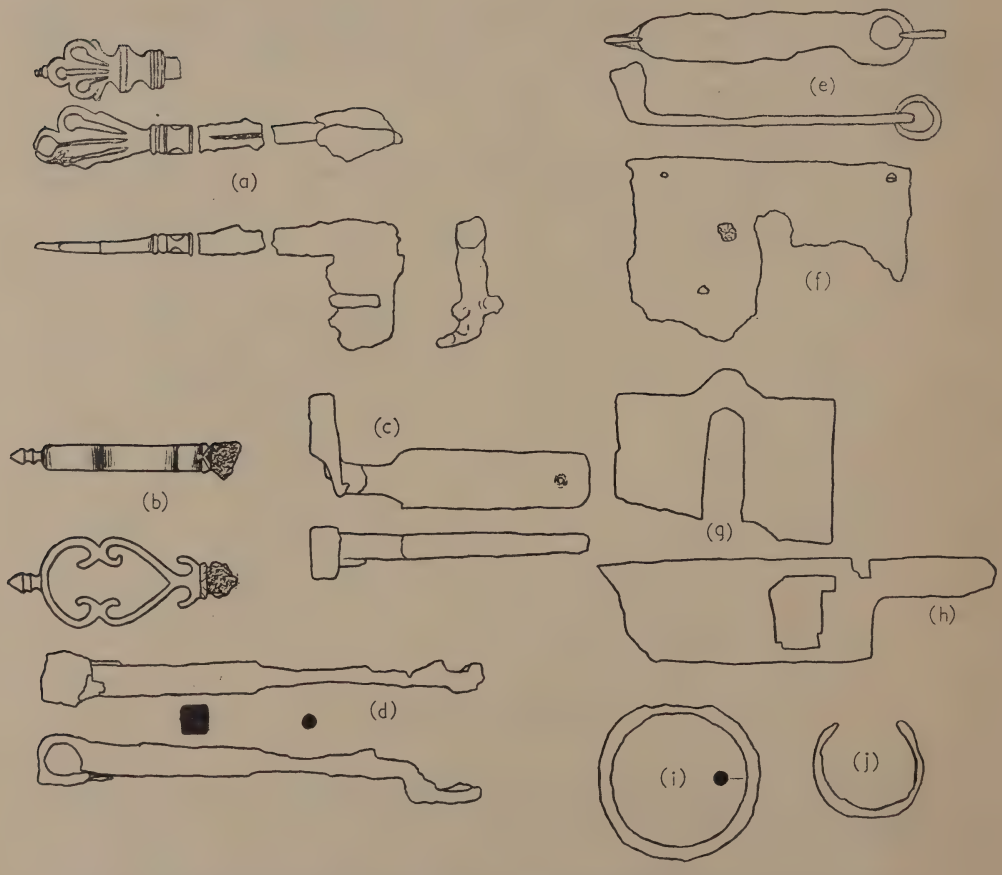


Fig. 7. Keys (*a–e*), keyplates (*f*, *g*), lock-fragment (*h*), ? door handles (*i*, *j*) ($\frac{1}{3}$)

A.5. *Keys, key-plates, locks, etc.*

Ward[14] gives the best summary of Romano-British locks and keys; there is also a short list of London examples in Wheeler.[15] The Brading villa produced a variety of keys and one complete bronze lock. The keys are shown in Fig. 7:

(*a*) An iron key with a bronze handle, at present in three pieces (handle, shaft, and bitt). Total length 5½ in. Handle 2½ in. long, in "Prince of Wales feathers" pattern, with one side broken off. Bitt set at right-angles to head. This type of handle is common; there is an example from Silchester, and Ward shows a similar type.[16] There is another similar handle from Chesters, and there are continental parallels at Trier and Arles.

(*b*) Brass handle, 3¼ in. long, 0.4 in. thick, with fragment of iron shaft adhering. This curvilinear design is fairly common on Romano-British keys; the Silchester collection has a similar example, and Fig. 68E in Ward is in the same style.

(*c*) Heavy iron key, 4½ in. long. Shaft 1 in. × ⅜ in., with hole pierced at one end. Bitt 1¾ in. × ¾ in. × ⅜ in.[17]

(*d*) Iron key 7⅛ in. long. Badly corroded bitt; shaft ¼ in. round cross-section for 2¼ in., then ½ in. × ⅜ in. rectangular cross-section up to loop at end. This appears to be the type shown by Ward[18] used with a spring padlock.

(*e*) Iron key, 4¾ in. long, 0.7 in. wide. Hole at end, with ring through it. The bitt is badly corroded. The identification of this object as a key is uncertain, in view of the flat nature of the shaft. However, a fragmentary example from Silchester seems to be of the same type.

Figure 7*f* is a fragment of a flat iron keyplate, 4½ in. wide, made from $\frac{1}{16}$ in. thick plate. Figure 7*g* is a similar type of keyplate, but curved slightly.

Figure 7*h* also appears to be part of a lock; it is an iron plate, 6¼ in. long, 1⅝ in. wide, and $\frac{3}{16}$ in. thick. A shaped and stepped hole, roughly 1⅛ in. × ¾ in., seems to be a simplified version of the bolts shown by Ward,[19] from Guildhall Museum and Caerwent.

Finally, two rings (Figs. 7*i* and *j*) were found. Whilst rings are common on Romano-British sites, it is rarely possible to identify their exact function. One possibility is that these may have been used as door handles, two being joined by a cord passed through a hole in the door. It may also be that the horse bit (Fig. 12*b* below) should also be included in this group; the Silchester collection includes a similar set of rings, though larger in diameter, which are confidently described as door handles from the basilica. The smaller size of the Brading examples would be more commensurate with domestic use.

B. Domestic objects and tools

B.1. *Knives*

Four knives, all single-edged, were found at Brading (Fig. 8):

(*a*) 3.3 in. long; blade 1.1 in. max. to 0.3 in. min. Tang (possibly broken) 0.5 in. long. A knife

[14] *Op. cit.*, f.n. 1, pp. 229–40.
[15] Wheeler, *London in Roman Times*, pp. 69–75.
[16] *Op. cit.*, Fig. 68D.
[17] Cp. Ward, *Romano-British Buildings*, Fig. 66M; Wheeler, *Verulamium*, Pl. LXV, 23, 29, 30; and examples in Silchester Collection.
[18] *Op. cit.*, Fig. 65F.
[19] *Op. cit.*, Fig. 67A, B.

Fig. 8. Knives ($\frac{1}{3}$)

of this type was found at Camulodunum,[20] and the Silchester collection has several examples; there are also very similar examples from Newstead.[21]

(*b*) 4.1 in. long; hollow tang 0.7 in. long. This type is represented in the Silchester collection.

(*c*) 7.7 in. long; tang 1.6 in. long. Max. width of blade $\frac{3}{4}$ in. Pointed end. Hollow ground. No exact parallel of this type has yet been traced. Its general appearance is reminiscent of the "cut-throat" razor, and this may indeed have been its purpose. The London Museum catalogue[22] shows several similar knives, but with blades and handles in one piece. A knife with a triangular cross-section comes from a Flavian pit at Maiden Castle.[23]

(*d*) 4.9 in. long; blade max. 1 in. wide. No tang. In fragmentary condition.

B.2. *Small Hand-tools* (Fig. 9)

(*a*) *Awl or punch.* 4 in. long. Max. thickness $\frac{1}{2}$ in. square. Rounded head, set obliquely. An exact parallel has not been traced; there is an example from London[24] that is identical apart from the head, which ends in a short shaft, possibly to receive a wooden or bone handle. The oblique setting of the head and the slenderness of the shaft suggest that this is an awl rather than a punch.

(*b*) *Stonemason's chisel.* $7\frac{3}{4}$ in. long. Shaft $\frac{1}{2}$ in. dia., splaying out to a blade $1\frac{1}{2}$ in. wide. The head burred over. The sturdiness of this object and its burred head make identification easy. Its only unusual feature is the fact that the blade is offset to one side of the longitudinal axis. However, there is an almost identical example from Silchester.

(*c*) *Punch* (?). Cylindrical iron bar of 0.6 in. diameter and $5\frac{1}{2}$ in. long. The ends have been splayed out so as to leave a hollow cavity in the middle. This is a baffling object; its ends are evidence that it must have suffered heavy and persistent hammering, but its purpose is not clear. It has been suggested that this might have been a die of some sort, possibly for nail heading, but it is difficult to envisage its mode of employment.

(*d*) *Tack or nail lifter* (?). A fragmentary implement, $3\frac{1}{4}$ in. long, with a hollow shaft, described earlier as an arrowhead. This interpretation does not appear to be correct, since there is no evidence of any thickening in the centre of the head, which might be expected. Moreover, the existing prong does appear to be original, although the object was badly corroded when examined. The slight angle between the prong and the axis of the shaft is reminiscent of modern

[20] *Camulodunum*, p. 343; Pl. CV, 24.
[21] Curle, *op. cit.*, Pl. LX, 7, 8, 13.
[22] Pl. XXXV, 1–3.
[23] Wheeler, *loc. cit.*, p. 272; Fig. 89, 7; cp. also Piggott., *P.S.A. Scot.* **87**, Fig. 12, B36, and Curle, *Newstead*, Pl. LX, 14.
[24] *London in Roman Times*, Pl. XXXII, 10.

tack-lifters, but there are two points which make this ascription doubtful: (*a*) the thin gauge of the head and (*b*) the wide gap between the existing prong and its symmetrically reconstructed counterpart. One is tempted to postulate a third middle prong, and to describe this as a three-tined fork, but this is difficult to find parallels for, whereas there is a roughly similar two-tined tack-lifter in the Guildhall Museum.

(*e*) *Scraper.* Iron shaft, square in section and tapering, 3 in. long; then turns through 90° to terminate in a plate 1 in. × 1¾ in. This seems to be a scraper for fine planing of wood or a cutting tool of some sort. The shaft is in fact a tang, and would have had a wooden handle.

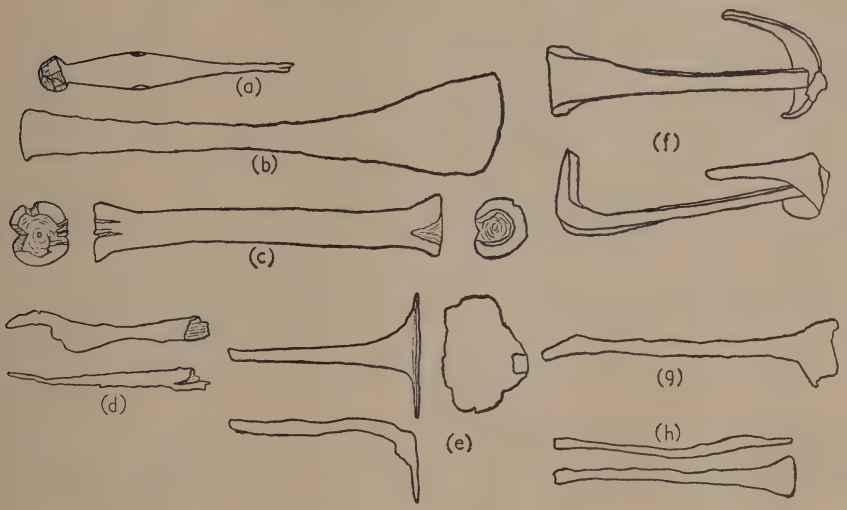


Fig. 9. Small hand tools: Awl (*a*), stonemason's chisel (*b*), ? punch (*c*), ? nail-lifter (*d*), scrapers (*e*, *f*), cutter (*g*), stylus (*h*) (⅓)

British examples are not known, but Déchelette[25] illustrates a La Tène implement from Saxony identical in type; he rather noncommittally describes it as a "*tranchet en fer*".

(*f*) *Scraper.* 4½ in. long, end turned through 90° to terminate in a 1 in. square "blade." At the end of the "tang" is a curved endplate, secured by forge-welding. This appears to be similar to the scraper shown in Fig. 11*e*; it differs in being much more robustly constructed, the wooden handle being bound in iron.

(*g*) *Cutter.* 4¾ in. long, ¼ in. square shaft, ending in head flattened out to 1 in. wide. Once again, Déchelette[26] provides a parallel; he describes as a "*tranchet*" an object from the Celles tumulus consisting of a long stem, square in section, with a tang at one end and a semicircular blade. He is again grandly vague in describing its use: "*Le tranchet . . . devait sans doute être utilisé pour découper diverses matières, métal en feuilles, cuir, etc.*" The Brading example is incomplete, but does resemble this type of cutting tool quite closely.

[25] J. Déchelette, *Manuel d'Archéologie Préhistorique, Celtique et Gallo-Romaine, IV* (1927), Fig. 603, 1.
[26] *Op. cit.*, Fig. 602.

(*h*) *Stylus.* 3$\frac{3}{4}$ in. long; shaft $\frac{3}{16}$ in. dia. Point broken off; spatulate end $\frac{5}{8}$ in. wide. A common type of simple stylus: there are several comparable examples in the Silchester collection.

B.3. *Large hand-tools* (Fig. 10)

(*a*) *Shovel.* Flat tang 4$\frac{1}{2}$ in. long × 1$\frac{1}{4}$ in. wide × $\frac{1}{8}$ in. thick, with two holes pierced in it; fragment of blade roughly 2 in. × 3 in., at about 30° to axis of shaft. The identification of this object is fairly certain, although no parallels have yet been found. Roman spades and

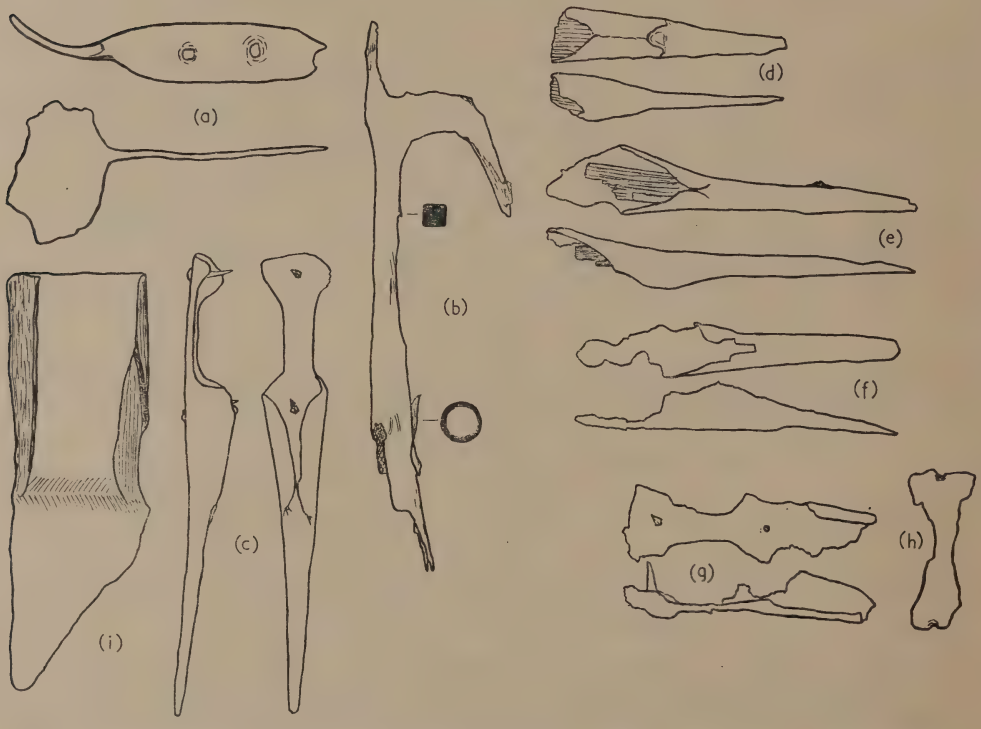


Fig. 10. Large hand tools: shovel (*a*), boathook (*b*), "spikes" (*c–h*), plough share (*i*) ($\frac{1}{4}$)

shovels appear usually to have been of wood, with metal edging to the blades,[27] but Collingwood[28] mentions that all-metal types existed, without giving any references. The Brading example was hafted by splitting the handle and securing it to the tang by means of rivets through the holes provided; additional bands were no doubt added round tang and haft. The angle of the blade to the tang suggests that this shovel had a long handle, of the type now confined to the western parts of these islands.

[27] G. C. Boon, *Roman Silchester* (1957), p. 181.
[28] R. G. Collingwood, *The Archaeology of Roman Britain* (1930), p. 269.

(*b*) *Boathook.* 11⅜ in. long, with protruding spike and bent-back hook; hollow shaft. This is an unexpectedly modern-looking boathook of robust construction. Its appearance at Brading is not surprising, in view of the close proximity of the sea to the site of the villa. Similar finds have been made in other littoral sites, and there is a fine example from Newstead.[29] Part of a second boathook in fragmentary condition was also found at Brading; it is not drawn, but was identical with that shown.

(*c*)-(*h*) "*Spikes.*" A number of similar objects were found at Brading; they consisted of iron "spikes", about 10 in. long, with sockets formed by forging out "wings" and folding them over. These were secured on to wooden shafts by means of nails:

(*c*) 10 in. long (complete); blade narrows from 0.7 in. × 0.4 in. to 0.3 in. × 0.1 in. Two nails in position.

(*d*) 5 in. long (spike only); blade 0.7 in. × 0.4 in.–0.2 in. × 0.1 in. Top surface slightly curved.

(*e*) 7.8 in. long (spike and part of socket); substantial traces of wood (ash?) in socket. Dimensions identical with (*c*).

(*f*) 6.8 in. long (spike and part of socket—badly corroded). Dimensions similar to (*d*); blunter point.

(*g*) 5.4 in. long (part of socket only). One nail in position, one nail-hole. Identical with socket of (*c*).

(*h*) 3¼ in. long (part of socket—badly corroded). Two nail holes visible.

The objects are not easy to identify with certainty. The excavators saw them as spears, and an identical object from Silchester is classified as a "ferrule". Ward[30] shows one from Rushmore with the comment that it is usually described as a spud, but may have been the point of a wooden pick. The spud in the London Museum is different in that the blade broadens out from the base of the socket.[31]

It is certain that these are not spearheads; their use is therefore domestic, and probably agricultural. As spuds they do not appear to be very efficiently designed, though they could no doubt be used quite effectively for weeding. This would appear to be the most likely use for these spikes, although Ward's suggestion that they were the tips of wooden picks is an excellent one.

(*i*) *Ploughshare.* 9 in. long, 3 in. wide; flanges 4¾ in. long, 1¼ in. deep. Triangular share. Weight 1 lb. 9 oz. No other example of a share of this type has been traced. Unfortunately it is rather severely corroded, which makes assessment of the oblique edge rather difficult. It does appear to be possible that the share had in fact been broken and discarded. However, another hypothesis presents itself; the profile of this share is very similar to that of the Silchester coulter.[32] It is not quite impossible that this may in fact have been not a share but a coulter, mounted on a stout oaken shaft that would be equally as strong as the all-iron Silchester coulter.

B.4. *Cooking* (Fig. 11)

(*a*) *Tripod.* 6 in. high, 5½ in. diameter. Made from three right-angled pieces of ⅝ in. × ¼ in. strip, forge-welded together. A very common Roman type: the Silchester collection includes an imperfect specimen, from which one of the three component parts is missing, of identical size and design.[33]

[29] Curle, *op. cit.*, Pl. LXVI, 8.
[30] Ward, *Romano-British Buildings*, Fig. 56H.
[31] *London in Roman Times*, Pl. XXXIV, 5.
[32] Boon, *Roman Silchester*, Fig. 35, 14.
[33] Cp. also Piggott, *P.S.A. Scot.*, **87**, Fig. 10, C73.

(*b*) *Cooking pot.* Fragment of rim 1.6 in. × 1.2 in. × $\frac{1}{8}$ in. Part of "bead-rim pot", $3\frac{1}{2}$ in. diameter.

(*c*) *Cauldron.* Fragment of rim $2\frac{1}{2}$ in. × 3 in. × $\frac{1}{8}$ in. "Bead-rim vessel", *c.* $9\frac{1}{2}$ in. diameter.

The first of these was examined metallographically, and proved to be made of cast iron (see Appendix). There is little doubt that both objects are in fact cast iron, which raises an interesting point. Most specialists are agreed that cast iron was unknown in antiquity[34]; the only fragments found in Roman bloomeries are usually amorphous lumps, resulting from an accidental increase in furnace temperatures. The cast-iron statuette from Beauport Park is of very doubtful authenticity.

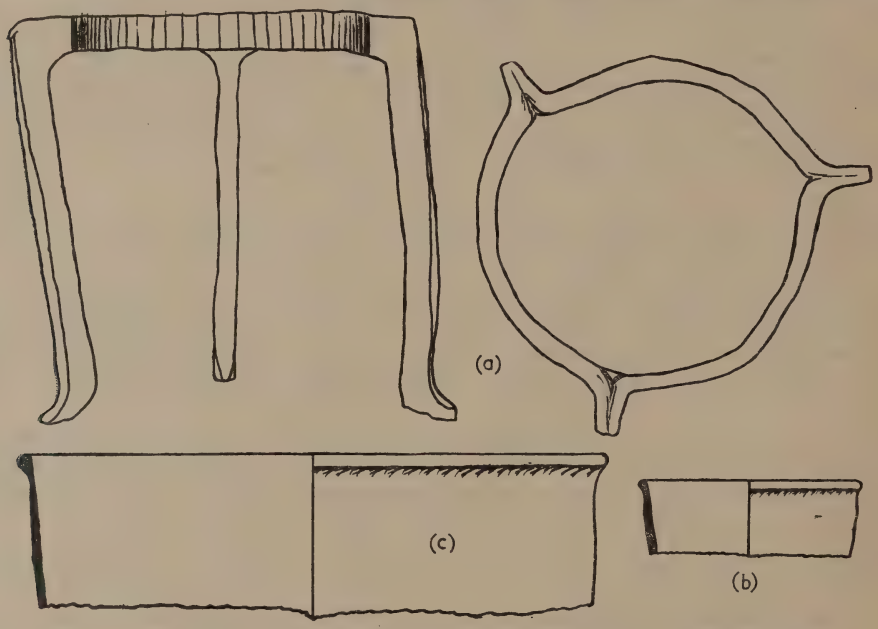


Fig. 11. Cooking equipment: tripod (*a*), cooking pot (*b*), cauldron (*c*) ($\frac{1}{3}$)

Since modern scientific methods of recording excavations had not been developed when the Brading villa was dug, the exact location of these two finds is unknown. For this reason it is impossible to quote them as evidence of Roman ironfounding; they are most probably medieval or even early modern objects, which had been abandoned on the site of the villa. This point is discussed more fully in the Appendix.

B.5. *Horsemanship and wheeled vehicles* (Fig. 12)

(*a*) *Horseshoe.* Fragment of iron horseshoe 0.1 in. thick and *c.*1 in. wide, with two rectangular holes and one nail *in situ*. Another smaller fragment, badly corroded but identifiable as part of a horseshoe, was also found; this is not drawn. A common Roman type.[35]

[34] E.g. J. R. Schubert, *History of the British Iron and Steel Industry from c.* 450 B.C. *to* A.D. 1775 (1957), pp. 57–8.

[35] Cp. *Maiden Castle*, Pl. XXXB.

(*b*) *Snaffle bit.* A two-link bit, 7.3 in. overall; rings *c.*1¾ in. o.d. A common Roman civil type, derived from native type.[36]

Note: The possibility should not be overlooked that "horse bits" of this type from domestic sites may have served as door handles. The Silchester collection includes two large rings of 4 in. diameter, similarly joined by two linked shafts, which served as handles of one of the large doors of the basilica. These would pass through a circular hole in the door; when one was pulled, it braced the other against the door to move the latter. On releasing the ring, it and its shaft would drop down flush with the door. If the Brading example were so used, it would imply a door with timbers 1½–2 in. thick, a likely size.

(*c*) *Spur.* Shaft 1⅜ in. long × ¼ in. circular section; side pieces broken and bent. The shaft is slotted to take a rowel. Roman spurs are usually simple prick spurs, and are not common. Collingwood[37] maintains that this was the only type of spur used, but Wheeler[38] suggests,

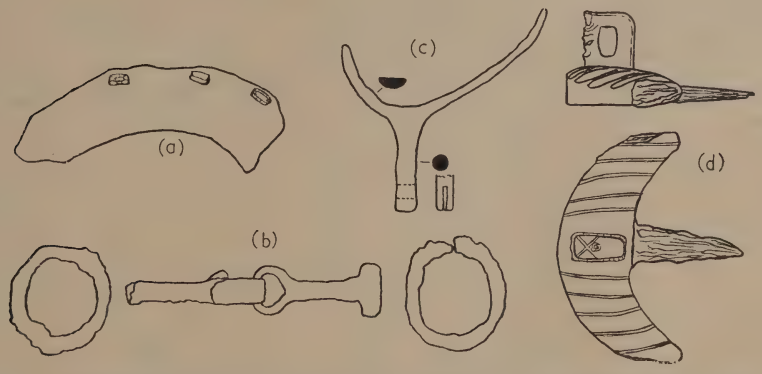


Fig. 12. Horse and vehicle equipment: horseshoe (*a*), snaffle bit (*b*), spur (*c*), linch-pin (*d*) (⅓)

from the Saalburg finds, that the rowel spur was known to the Romans. It is interesting to note that on the Brading spur the rowel would have been parallel with the ground and not perpendicular to it, as in medieval and modern spurs.

(*d*) *Linch-pin.* A semilunate linch-pin in coppered lead on an iron base; 3¾ in. wide × 0.6 in. (max.) thick. Remains of iron shaft (badly corroded) 1¾ in. long × ½ in. thick, tapering to point. Eye 0.9 in. high, 0.4 in. × ¾ in. thick. Body decorated with grooves; head of eye has grooved cross.

This is similar in type to an undecorated example in bronze from London, illustrated by Wheeler.[39] This type is discussed at some length by Hawkes and Hull[40]; it is the south-eastern type of Ward-Perkins's classification and is pre-Roman in origin, but persists into late Roman times.

[36] Cp. Piggott, *P.S.A. Scot.*, **87**, Fig. 8, C4; C. Fox, *A Find of the Early Iron Age from Llyn Cerrig Bach, Anglesey* (1946), Pl. XXVI, 58; and the Silchester Collection.
[37] *Archaeology of Roman Britain*, p. 270.
[38] *London in Roman Times*, p. 151.
[39] *Maiden Castle*, Pl. LXII, 4.
[40] *Camulodunum*, p. 331.

What is unusual about this object is the material; lead with a very low copper content is not often found, the lead usually being refined by cupellation. It is possible that the metal was deliberately not refined in view of the decorative effect of the alloy.

C. Miscellaneous

This section includes a number of items which do not properly come under either of the previous section headings, or whose use is obscure.

C.1. *Staples*. There were two staples in the Brading material (Figs. 13*a*, *b*):
(*a*) Head 2 in. long × $\frac{5}{8}$ in. wide; points $\frac{7}{8}$ in. long × $\frac{1}{8}$ in. wide; $\frac{1}{16}$ in. thick.
(*b*) Head $2\frac{1}{2}$ in. long × $\frac{3}{8}$ in. wide; points (broken) $\frac{1}{4}$ in. wide × $\frac{1}{2}$ in. long; $\frac{1}{8}$ in. thick.

Staple (*a*) is slightly constructed, and was probably inserted into fairly soft wood, possibly for

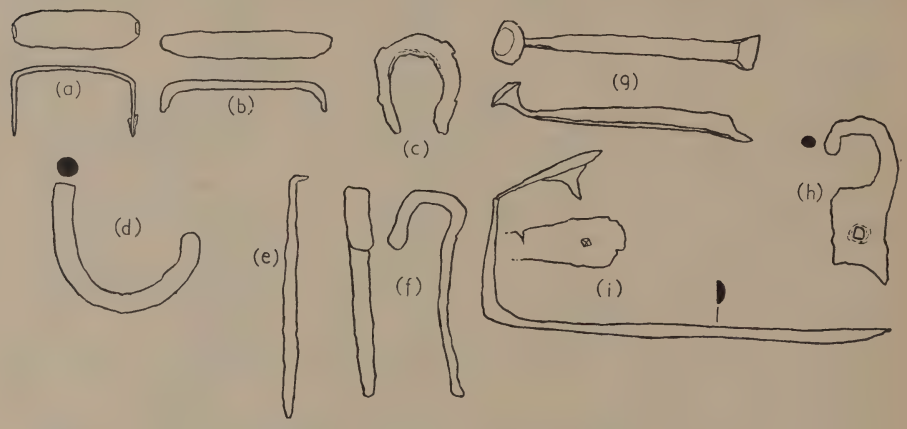


Fig. 13. Miscellaneous objects ($\frac{1}{3}$)

a decorative purpose; (*b*) is very strong, and may have served to join heavy timbers or brick. Parallels are shown by Piggott.[41]

Horseshoe staple. Fig. 13*c* shows a horseshoe-shaped staple roughly 1.3 in × 1.6 in., made from $\frac{1}{4}$-in. rod, with roughly pointed terminals. There is evidence of wear on the inner surfaces. This appears to have been inserted into some material, probably wood, and to have served to secure a rope or metal hook. No parallels have been found.

Hook. Fig. 13*d* is a curved hook made from $\frac{3}{8}$-in. rod. One end is rounded and the other appears to have been broken clean across.

Iron rod. Fig. 13*e* shows an iron rod $3\frac{3}{8}$ in. long and $\frac{3}{16}$ in. diameter. It is pointed at one end; the other is flattened and bent over for $\frac{1}{4}$ in. through 90°. It may be a small iron file of the type from London.[42]

Cauldron chain (?). The hook shown in Fig. 13*f* is $3\frac{1}{2}$ in. long and $\frac{1}{4}$ in. × $\frac{1}{8}$ in. in section; the curved end is slightly thickened. It is too small to identify with certainty, but it resembles in

[41] *P.S.A. Scot.*, **87**, Fig. 8, C9; Fig. 10, C54; Fig. 12, B27.
[42] *London in Roman Times*, Pl. XXXIII, 5.

some respects the hooks at the ends of the Great Chesterford cauldron chains; this and other examples are discussed by Piggott.[43]

Chisel (?). A very difficult object to interpret is shown in Fig. 13*g*; this is $4\frac{1}{8}$ in. long, tapering from $\frac{1}{4}$ in. square to $\frac{1}{8}$ in. square. The thinner end is turned up through 30°, ending in a round button of $\frac{5}{8}$ in. diameter; the other is flattened to form a splayed "cutting edge" $\frac{1}{2}$ in. wide. It seems to be a tool, the thinner end having been protected by a wooden handle. The button appears to have undergone some hammering; this may account for the bending of the shaft. The existing splayed end could have been sharpened for use as a wood chisel.

Handled hook. Fig. 13*h* is a rounded hook, which is the termination of a (broken) flat strip $\frac{7}{8}$ in. wide × $\frac{1}{16}$ in. thick. The strip has one nail hole in it. This was probably a tool of some sort, with a bone or wooden handle; it may have been used in connection with leather working or net making. A similar object was found at Silchester.

Angle iron. A number of pieces of iron strip with nails or nail holes in were found. Three in very fragmentary condition were all about $2\frac{3}{4}$ in. wide and $4\frac{1}{2}$ in. long, and were bent through 90°; they may have served as the binding of a wooden chest. The only piece of material of this description in fairly good preservation is shown in Fig. 13*i*. It is made from strip 0.4 in. wide and of semicircular cross-section; this widens out to $\frac{3}{4}$ in. at the end, in which a small nail is still in position. It appears to have been a decorative binding of a small box or chest.

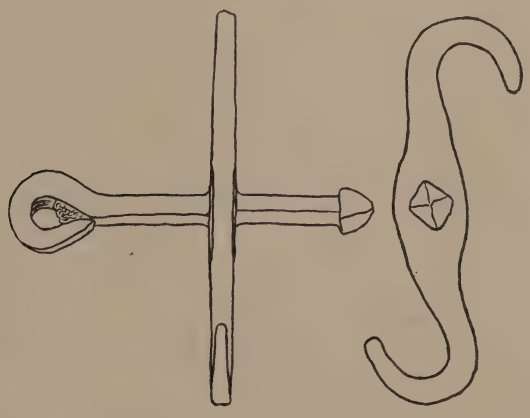


Fig. 14. Double hook ($\frac{1}{3}$)

Double-pendant hook. The most baffling object in the whole collection, for which no parallel, Roman or later, can be found, is shown in Fig. 14. This is a "double-pendant hook" (i.e. S-shaped, like a modern meathook), $\frac{3}{8}$ in. thick and $6\frac{1}{4}$ in. long. The S is thickened in the middle and pierced by a shaft, 6 in. long by $\frac{1}{2}$ in. square, which is bent into an eye at one end and hammered to form a roughly pyramidal boss at the other.

No Roman or modern parallel has yet been found for this object. The hooks show signs of wear on the inside, consistent with their each having retained a loop of rope. From a functional point of view, it appears that the object might have been suspended vertically from a hook, and

[43] *Loc. cit.*, f.n. 41, pp. 43–4.

the two hooks served to take the strain from ropes attached to them and pulling horizontally in opposite directions. However, this does not account for the $2\frac{1}{4}$ in. of shaft with the pyramidal boss; it has therefore been suggested that the object may have been mounted with the shaft in the horizontal plane, either side being supported in a bearing of some sort. A rotary action could have been imparted by using a tommy bar through the eye; it would then have acted as a kind of cog-wheel. However, the square cross-section of the shaft militates against this.

APPENDIX

Some notes on the manufacture of the iron objects

All the objects examined, with two significant exceptions noted above, appear to have been made from wrought iron; many of them, notably the stylus and some of the nails, show very well to the naked eye the familiar laminated appearance, caused by the unequal corrosion of the alternate layers of very pure iron and included slag, resulting from the forging of the bloom. A full description of the direct process of ironmaking is given by Schubert and by Coghlan[44]; it can be briefly summarised as follows. A mixture of iron ore and charcoal was heated in a closed furnace, with the application of blast by means of bellows. Combustion of the charcoal produced hot reducing gas, which freed the iron from its oxide in the ore. The heat was not sufficient to produce molten iron; the metal formed was in a viscous, pasty state, and flowed slowly down to the bottom of the furnace, taking with it particles of mineral slag from the ore. This formed a bloom—a porous mass of iron and slag—which was removed when cool, and then alternately reheated and forged with hammers; this had the effect of removing much of the slag, which was squeezed out, and of consolidating the iron. The result was a compact billet of iron, very low in carbon and other elements, with thin layers of slag in it, that were not removed by forging. This iron was very malleable and ductile, and could be forged by the smith into a variety of shapes.

The working processes shown by the Brading material are all those which are still practised by modern blacksmiths. The iron was forged into rod of square (nails) and round (latch-lifter) section and into strip or sheet (hinges, angle irons); it was pressure-welded (rings, tripod, bit) and pierced (hinges); it was almost certainly hardened or "steeled" by carburising it by heating it in a mass of charcoal (knives) and probably also annealed (chisel). The Roman smith could do almost anything with his metal, but it was always as a result of the expenditure of a great deal of energy, in the form of heat and personal exertion. The art of casting iron—i.e. of obtaining it in a molten state and pouring it into a sand or stone mould—was unknown, since temperatures high enough to make iron completely fluid (above 1500° C) were unobtainable.

It was therefore surprising to find the two fragments of rims of iron vessels (Fig. 11*b*, *c*) in the collection; it seemed unlikely that these could have been forged from wrought iron. The smaller of these (Fig. 11*b*) was therefore sent, together with a broken latch-lifter shaft (not drawn), to the Brown-Firth Research Laboratories, Sheffield, for metallurgical examination. The following report was received from the Director of Research, Mr. J. Woolman, to whom the author is deeply indebted.

Latch Lifter

"Pl. I*a* shows the article prior to our examination and indicates where we carried out our metallographic and chemical investigations.

[44] Schubert, *op. cit.*, f.n. 34; H. H. Coghlan, *Notes on Prehistoric and Early Iron in the Old World* (Pitt-Rivers Museum, University of Oxford, Occasional Papers in Technology, No. 8; 1956).

Its chemical analysis in wt % was as follows:

C	*Si*	*Mn*	*S*	*P*
0.02	0.11	0.05	0.015	0.30

This analysis would be in keeping with that of a wrought iron, as was indicated by our metallographic examination.

Thus, Pl. I*b* shows the fibrous nature of the material after a chemical descaling treatment, while Pl. I*c* and *d* (at × 25 and × 100 respectively) show the highly elongated stringers of non-metallic matter (oxides and silicates) visible in a longitudinal section of the article.

Pl. I*e* shows the carbide-free polygonal ferrite grains together with non-metallic inclusions visible at a magnification of × 500 in a transverse section.

All the above features are consistent with those of a wrought iron.

Cauldron Fragment

Pl. II*a* shows the fragment prior to our examination: on the left, an attempt to show the lip: on the right, where we took our material for examination.

Its chemical analysis in wt.—% was as follows:

Carbon			*Mn*	*S*	*P*
Total	*Graphite*	*Combined*			
3.36	2.98	0.38	0.98	0.13	0.90

There was insufficient material to analyse for silicon.

Too much reliance should not be put on the exact values quoted, particularly with respect to the values for graphitic and combined carbon, on account of the small amount of material analysed and the possible variation in the sample.

The metallographic examination showed a cast microstructure consistent with that of a rapidly chilled cast iron. This is illustrated in Pl. II*b* and *c*, *b* (at × 40) showing the structure prior to etching and *c* (at × 100) after etching in 2% nital. The darker material in the dendritic pattern is graphite. Examination at a higher magnification, as in Pl. II*d* (at × 500), shows the grey graphite flakes and also a white eutectic of ferrite with iron phosphide and probably also iron carbide. These constituents are all in keeping with the analysis of the material.

We feel fairly confident of this cauldron fragment having a cast structure. Whether it represents a specifically Roman cast iron is not a question we feel entitled to answer.

It should be pointed out that native British ores rarely contain sufficient manganese to give as much as 0.98% Mn in the final product, which suggests a possible foreign source for the cauldron."

These two analyses are typical of Roman wrought iron and of cast iron respectively. The former is very similar to those quoted by Schubert,[45] though the carbon content is a little lower than any of the examples he quotes; the microstructure is the classic wrought-iron type. The structure of the cast iron is equally typical; its analysis is certainly unusual, in view of the high manganese content. However, it may not be necessary to look for a foreign source; the cast-iron

[45] *Op. cit.*, f.n. 34, Appendix I.

block found in the Roman industrial settlement at Tiddington, near Stratford-on-Avon,[46] had the following composition:

	Carbon				
Total	*Graphite*	*Combined*	*Mn*	*S*	*P*
3.52	3.21	0.31	0.63	0.049	0.765

Since the values quoted by Mr. Woolman are only approximate, in view of the size of the specimen tested, it may well be that the manganese content would be slightly lower.

However, as mentioned above, the lack of stratigraphical evidence makes it impossible to quote this as evidence for the use of cast iron in Roman Britain. It underlines, on the other hand, the need for a more careful metallurgical examination of undisputed Roman iron objects. As yet, our knowledge of Roman ironmaking processes is fragmentary; all too few sites have been excavated, and the uses of the structures found are only imperfectly understood.

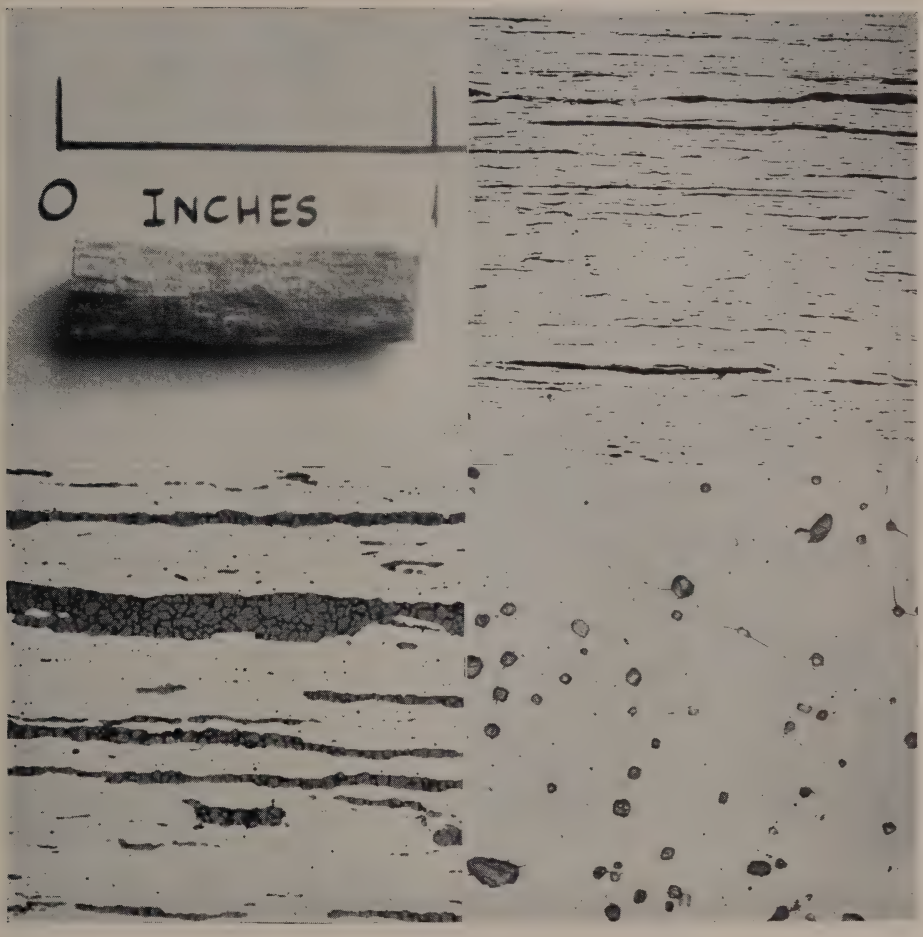
ACKNOWLEDGEMENTS

The author's thanks are due to Brigadier-General Sir Cecil Aspinall-Oglander, owner of the material described in the paper, who made it available for study; to Mr. S. S. Frere, F.S.A., on whose suggestion the paper was written, and who gave helpful advice; to Mr. J. Woolman and Dr. B. Cina, of the Brown-Firth Research Laboratories, Sheffield, who readily and enthusiastically undertook the metallurgical examination; to Mr. J. Wymer, of Reading Museum, who gave the author access to the Silchester ironwork; and to Mr. J. A. Percy, whose knowledge of contemporary building techniques was of great value in the identification of some of the objects.

[46] W. J. Fieldhouse, T. May and F. C. Wellstood, *A Romano-British Settlement at Tiddington, near Stratford-on-Avon, Birmingham* (Birmingham, 1931).

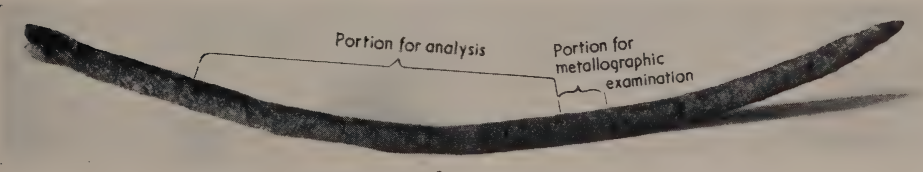
b

c


0 INCHES

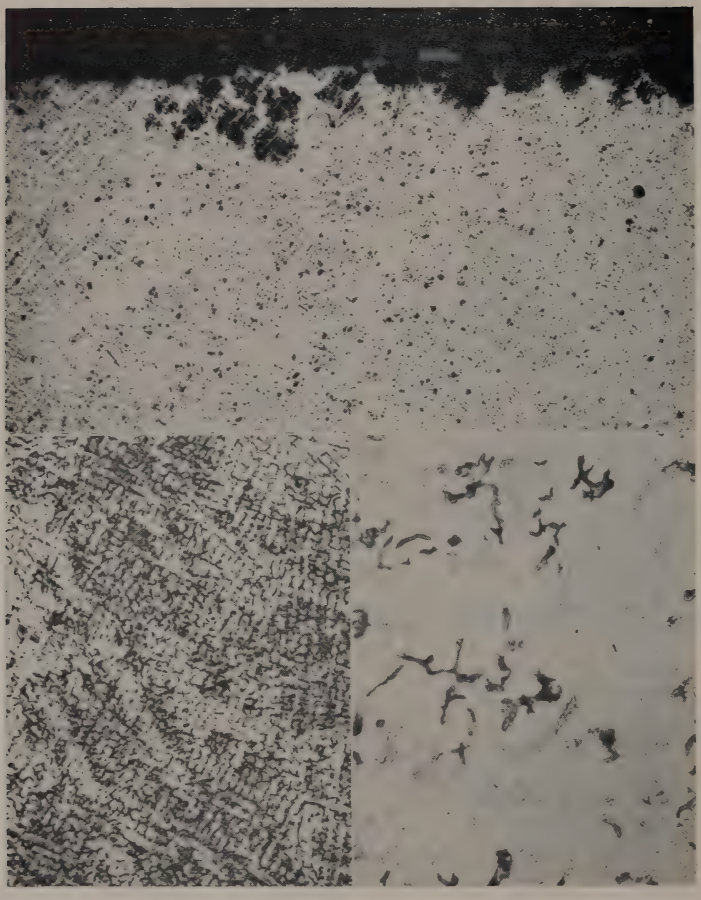
d

e


Portion for analysis
Portion for metallographic examination

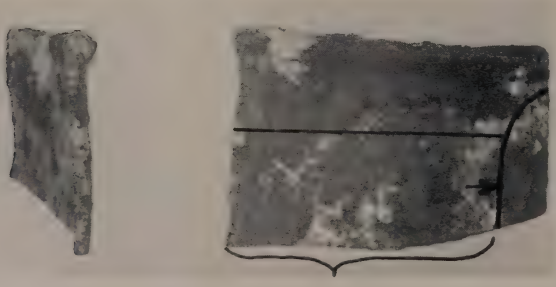
a

b



c

d



a Portion for analysis

Report of the Director for the Session 1956–57

ADMINISTRATION

Professor V. Gordon Childe

The death of Professor Childe took place in tragic circumstances in Australia on October 19th, 1957. The Institute takes this earliest opportunity of expressing its sense of loss and mourns a friend and colleague of unsurpassed distinction. Messages of condolence have been received from many individuals and from a number of foreign learned institutions. The question of a permanent memorial is now being considered.

Staff

Professor W. F. Grimes took over the Directorship of the Institute at the beginning of the Session, and at the same time Professor J. D. Evans succeeded Professor Childe as Professor of Prehistoric European Archaeology.

Mr. A. M. ApSimon resigned from the post of Assistant in the Department of Prehistoric European Archaeology to take up an appointment at the Queen's University, Belfast. Miss O. N. Starkey retired under the age-limit after twelve years of valuable service in the Technical Department, where her skill as a restorer has much benefited the Institute's reputation. The departure of these colleagues is generally regretted, but it is hoped that Miss Starkey's help may still be available on occasion in the future. Mr. ApSimon's post has not been filled pending a reconsideration of the teaching requirements in the Department.

In the Technical Department Miss Ione Gedye has been given the title of Lecturer and Head of the Department. A former student of the Institute, Mr. H. M. H. Hodges, was appointed Lecturer in Archaeological Technology to take up his duties at the beginning of the 1957–58 Session.

Mr. John Waechter, F.S.A., who for some years past has rendered valuable service to the Environmental Department as teacher and demonstrator, on a number of occasions deputising for the Professor, was given the title of Honorary Lecturer in Palaeolithic Archaeology in the Department.

Professor Codrington returned from his research leave in India in October and has reported at length on his archaeological investigations and on renewed contacts with Indian scholars.

Professor Zeuner was given leave in February to give guest lectures at the University of Vienna. He attended the annual meeting of the Academy of Arts and Sciences of Mainz, of which he is a Foreign Member. Professor Zeuner also attended the Fifth International Quaternary Congress (INQUA) at Madrid, in September, as delegate of the Institute and several societies. His book *The Pleistocene Period* was translated into Spanish for the Congress, and by agreement with the authorities of the Royal Institution he was able to make a preliminary publication of Radio-Carbon dates obtained by Mr. D. E. Vaughan under his direction. Prior to his visit to Spain he worked on ancient shorelines in the Canaries at the invitation of the *Consejo Superior de Investigaciones Cientificas.*

Professor Mallowan was given leave of absence to visit the United States in June to receive the Lucy Wharton Drexel Medal of Pennsylvania University. He visited the Asiatic collections in Chicago, Boston, and the Metropolitan Museum, New York.

Political conditions in Jordan prevented Dr. Kenyon from undertaking the full season's work at Jericho in the Spring Term for which leave had originally been granted. Dr. Kenyon's programme was therefore postponed until the Autumn Term, but she was able to take a small expedition to Jericho in March for preparatory purposes.

Mr. M. B. Cookson was granted leave of absence to assist at the excavations at Verulamium which, under the direction of Mr. Frere, have once again produced much new information bearing both on the Roman city and on the province as a whole.

On the clerical side, Miss Jennifer Banham resigned in March and Mrs. P. M. Brooks took her place as principal clerk; the resulting vacancy was filled by Miss E. Atkins.

Lectures

The Director and Professor Evans gave their Inaugural Lectures during the Autumn Term, the former on "Archaeology and the University" at the Senate House on November 8th; the latter on "Two phases of prehistoric settlement in the western Mediterranean" at the Institute on November 27th. Both lectures are printed in the Institute's *Bulletin* for 1956–57. Advantage was taken of a visit of an old friend of the Institute, Dr. P. Dikaios, to invite him to give a special lecture on recent archaeological work in Cyprus; this, entitled "Recent contributions to knowledge of the Late Cypriot Period," was given on October 4th. Dr. M. Grbić of the Serbian Academy of Sciences, Belgrade, visited the University under the Yugoslav Interchange Scheme and gave a lecture at the Institute entitled "Starčevo as the earliest expression of the Neolithic economy in the Balkans." During the Spring Term, Dr. H. J. Plenderleith, Keeper of the British Museum Laboratory, gave a series of six public lectures on "The scientific laboratory in the service of art and archaeology" to audiences which averaged sixty in number. The Prehistoric Society held its usual Easter Conference at the Institute on the subject of "The Mediterranean down to 1000 B.C."

Reference was made in the Report for 1955–56 to the assistance given by the Institute to the Extra-Mural Department of the University in teaching and other services for the Extra-Mural Diploma in Archaeology. This collaboration was continued during 1956–57, though the building-up by the Extra-Mural Department of its own teaching equipment has reduced the demand upon Institute resources. The operation of the original scheme for the Diploma revealed in practice a number of weaknesses and a joint committee under the chairmanship of the Director of the Institute sought to take advantage of this experience in a revised scheme which was in due course submitted to and accepted by the University Extension Committee. There can be no doubt that the Diploma is now firmly established and the written work of some of the candidates has been of a remarkably high standard.

Both for the Diploma Courses and for other Extra-Mural teaching the Institute's collections have continued to provide material for demonstration, and once again the Ministry of Education teacher's course on archaeology in the teaching of history was able to benefit from the Institute's collections before going on to the practical side of its programme at Verulamium.

Students

The total number of students registered at the Institute during the Session was 81; besides these, 32 Intercollegiate students attended courses. Of those registered at the Institute, 23 were registered for Diplomas, 20 for Higher Degrees, 3 for special research under Statute 21(iii) part-time and 6 as full-time Technical Students, while 26 Occasional Students have been attending lectures and using the facilities of the Institute, and 3 students have attended Diploma courses as full-time Occasional Students.

Three students were awarded the Diploma in European Archaeology, Section B.I., one of them with Distinction; and one student was awarded the Diploma in Prehistoric Archaeology.

Of the 20 students registered for Higher Degrees, 9 were registered for the Ph.D. full-time and 3 part-time, 3 for the M.A. full-time and 4 part-time, and 1 for the M.Sc. full-time. Of the foregoing, Mr. A. Dajani of Jordan (Western Asiatic) was awarded the Ph.D. Degree for his thesis on "The Hyksos Period in Palestine (Palestine under the Hyksos)"; Mr. G. W. P. Jarvis (Environmental) was awarded the M.A. for his thesis on "The Lower Palaeolithic gravels between Southampton and Portsmouth, Hants," and Mr. A. J. Sutcliffe (Environmental) the Ph.D.(Science) for his thesis on "Cave Fauna and Cave Sediments." One student from Pakistan with a grant from the Pakistan Government, Mr. Nazimuddin Ahmed, was studying for the M.A. in Indian Archaeology; one student from Thailand with a grant from the Thai Government, Mr. Vidya Intakosai, was studying for the Diploma in Prehistoric Archaeology; and two full-time Occasional Students, one, Mr. Bakka, from Norway with a grant from the British Council, and one, Mr. Uduwara, from Ceylon with a UNESCO grant, were following Diploma courses.

The following countries were represented among students registered at the Institute: Australia 1, Austria 1, Canada 2, Ceylon 2, Jordan 1, Norway 1, Pakistan 3, Portugal 1, Thailand 1, U.S.A. 7.

It has been decided from this Session to modify the Institute's policy with regard to the admission of part-time students for the Diploma. Having reviewed the position, the Committee of Management agreed that while the Institute should honour its obligations to existing part-time students, new students should no longer be accepted on this basis unless the Director and teachers were fully satisfied that they could comply with an approved time-table and satisfactorily complete the course. While every attempt will be made to apply this policy with flexibility it is thought that the Extra-Mural Diploma in Archaeology may in future meet the needs of most part-time students.

Collections and new building

Towards the end of the Session advantage was taken of the Long Vacation to make the first preparations for the removal of the Institute to the new building in Gordon Square which will be ready for occupation, it is anticipated, early in 1958. With some extra help the packing of the Palestinian Collection, which is the largest single item in the Institute's teaching collections, was completed within that time, and thanks are due to the Secretary of the Institute and to Dr. Kenyon for seeing this essential work through before Dr. Kenyon's departure for her season at Jericho in the Autumn Term. Thanks are also due to the Chairman of the Management Committee, Professor Wooldridge, for the part that he has played in the many discussions and other matters connected with the accommodation and equipment of the new building; and as curator of collections, Miss du Plat Taylor has rendered valuable service in the organisation of the teaching collections to make the most efficient use of the new standard storage fittings.

The Palestinian teaching collections have been augmented by a series from the 1956 Jericho excavations, the gift of the British School of Archaeology in Jerusalem, representing periods not hitherto covered at the Institute.

The Institute's equipment was usefully increased by a loan from the Wellcome-Marston Archaeological Research Expedition to the Near East of a quantity of surveying equipment, on permanent loan for use of the Institute or for lending to expeditions at the discretion of the Director.

TEACHING AND RESEARCH

The Director continued his investigations of the bombed areas of the City of London on behalf of the Roman and Mediaeval London Excavation Council. The examination of the west gate of the Cripplegate Roman fort was completed and the remains have been covered in until such time as they can be consolidated for permanent preservation as an addition to the City's visible antiquities. Fresh evidence

relating to the date and character of the fort and of the city defences was also recovered elsewhere. At the request of the L.C.C. he supervised the excavation of the late medieval manor-house known as Brooke House, Hackney.

Publications

Excavations in the city of London. Chapter VI in *Recent Archaeological Excavations in Britain*, Bruce-Mitford (Ed.), Routledge & Kegan Paul, 1956.
(With A. D. Lacaille)
The Prehistory of Caldey (Pembs.), I. *Arch. Cambrensis* (1955), pp. 85–165.
Societies in Archaeology today. (Presidential Address) Council for British Archaeology *Annual Report* (1956–57), pp. 27–33.

ENVIRONMENTAL ARCHAEOLOGY

The number of students working in the Department during the session was 14, 4 being registered for Ph.D., 2 for M.A., 1 for M.Sc., 2 as Research Students under Statute 21(iii), 3 for Postgraduate Diploma in Prehistory and 2 as Occasional Students. Of the higher degree students, 3 were registered in the Faculty of Arts and 4 in the Faculty of Science.

In addition research was carried out in the Department on the history of domesticated animals, including the Neolithic fauna of Jericho, and the technique of preparing thin sections of archaeological deposits. Dr. Waechter visited the Peabody Museum of Harvard University to study the Upper Palaeolithic sequence of the important site of Ksar 'Akil in Lebanon.

Particular attention was paid to field work and excavation training. The collection of Stone Age material from Transjordan made in the previous year with the aid of the Central Research Fund was investigated and further work carried out on the preservation of organic matter in the tombs of Jericho. Much time was spent on experiments in the preparation of samples for radiocarbon analysis, most of these samples being derived from the pre-pottery levels of the Tell of Jericho.

Excavations were continued during the summer at Three Holes and Pulsford Caves, Torbryan, Devon. The work on the Grotto and Pulsford Cave is completed; it is intended to continue excavations at Three Holes Cave for at least another season. These excavations are specially organised so as to teach students the technique of excavation of Palaeolithic sites. 31 students availed themselves of this opportunity, of whom 8 were veterans of previous years. It is noteworthy that 7 of the remainder were Extra-Mural students of London University.

Apart from sites studied specially in the interests of teaching and research work in the Institute, eight requests to study soils, the nature of archaeological material and bones, were complied with during the year, coming from the following sites: St. Breland, Jersey (Acheulian); Holborough, Kent (Neolithic); Barton Hill Farm, Beds. (Neolithic and Early Bronze Age); Weeke, Winchester (Beaker); Swarkeston, Derby-

shire (Bronze Age); Wiveliscombe, Somerset (Romano-British); Rutland (Roman); and Rodborough, Glos. (1st century A.D.).

Two excursions were organised by the Department, one to Box Hill, Abinger (Mesolithic) and Leith Hill, and one to West Kennet long barrow, Avebury and Stonehenge, and Knowle Farm (Acheulian).

Publications

By Professor Zeuner:

Time rates of organic evolution. *Bull.* No. 7 of the Nat. Inst. Sci. India, New Delhi (1955), pp. 276–89.

Notes on the Bronze Age tombs of Jericho, I. *Palestine Expl. Quart.*, (1955), pp. 118–28.

The domestication of animals. *Scientia* (Asso, Italy), 50 (1956), 6 pp.

Les boules de loess paléolithiques d'Achenheim. *C.R. XIV Sess. Congr. préhist. France* (1953), pp. 663–6.

Loess and Palaeolithic chronology. *Proc. Prehist. Soc.*, 21 (1955), pp. 51–64.

Domestic cattle and aurochs. *Oryx* (London), 3 (6) (1956), pp. 319–22.

The Radiocarbon Age of Jericho. *Antiquity* 30 (1956), pp. 195–7.

Stone Age exploration in Jordan, I. *Palestine Expl. Quart.* (1957, Jan.–June), pp. 17–54.

By Professor Zeuner and Dr. B. Allchin:

The Microlithic sites of the Tinnevelly District, Madras State. *Ancient India*, No. 12 (1956), pp. 4–20.

By Dr. Cornwall:

Pre-pottery Neolithic burials, Jericho. *Palestine Expl. Quart.* (1956), pp. 110–24.

Bones for the Archaeologist. 255 pp. London (with illustrations by Miss M. Maitland Howard, artist at the Institute).

Report on soils in Posnansky, M., The excavation of a Bronze Age round barrow at Lockington. *Trans. Leics. Arch. Hist. Soc.*, 31 (1955), pp. 25–7.

Report on soils in Lacaille, A. D. and W. F. Grimes, The prehistory of Caldey (Pembs.) *Arch. Cambrensis*, 104 (1955), pp. 159–65.

Report on soils in Ashbee, P., The Excavation of a round barrow on Canford Heath, Dorset. *Proc. Dorset Nat. Hist. Arch. Soc.*, 76 (1956), pp. 47–50.

Report on soils in Thomas, N., The Thornborough Circles, near Ripon, North Riding. *Yorks. Arch. J.*, 38 (1952–55), pp. 441–2.

INDIAN ARCHAEOLOGY

Three students were working at the Institute; two for the Diploma and one for the M.A. degree.

The weekly afternoon visits to the British Museum and Victoria and Albert Museum have proved popular, attracting a number of students from other schools of the University. Expeditions were made to Verulamium and St. Albans Cathedral, Lewes and Mount Caburn and the Trundle and Chichester Cathedral.

PREHISTORIC EUROPEAN ARCHAEOLOGY

There were 6 students registered for the Diploma, of whom 3 were full-time and 3 part-time. 11 intercollegiate students also attended the courses. 1 postgraduate student from Norway was registered as a full-time Occasional Student for the first term only. 5 students were engaged on research for Higher Degrees, of whom 2 were registered for the M.A. and 3 for the Ph.D. degree.

During the third term the Department combined with the Department of the Archaeology of the Roman Provinces for two field excursions, a single-day excursion to Iping, Sussex, and a two-day one to Cambridge. Visits were made on both occasions to monuments and sites in course of excavation.

Publications

By Professor Evans:
The "Dolmens" of Malta and the origins of the Tarxien Culture. *Proc. Prehist. Soc.*, 22 (1956), pp. 85–101.

ARCHAEOLOGY OF THE ROMAN PROVINCES

Courses of lectures have been given on Iron Age Britain, Roman Britain, and Roman Gaul. There were 9 students registered for the Diploma, 5 full-time and 4 part-time. Of those taking the examinations 3 obtained the Diploma, one of them (Miss Helen Waugh, a part-time student) with Distinction. The course on Roman Britain was attended by 20 Intercollegiate students reading for the B.A. degree in History or Classics. 1 student was registered for the M.A. degree and 2 for the Ph.D. 1 student was doing special research under Statute 21(iii).

A number of students attended the excavations at Canterbury, Verulamium and Bignor, directed by Mr. Frere. The restoration of several very large sheets of Roman wall plaster recovered at Verulamium in 1955–56 has been proceeding within the Department. This find is a unique event in Romano-British archaeology, calling for a number of new techniques in the treatment of the plaster and for a new consideration of certain aspects of the art traditions exemplified on the sites of Roman Britain. Joint field-meetings were also held with the Prehistoric European Department.

Publications

By Mr. Frere:
Excavations at Verulamium 1956: Second Interim Report. *Antiquaries J.*, 26 (1957), pp. 1–15.

WESTERN ASIATIC ARCHAEOLOGY

Within the Department there were 3 students preparing theses for the Ph.D. degree and one for the M.A. degree; 3 working for the Diploma in Western Asiatic Archaeology (Palestine). A class of 8 students attended the special course in Anatolian Archaeology, and 12 attended the course in Palestinian Archaeology.

The Department continued its research activities. Professor Mallowan devoted another season to excavation at Nimrud which, apart from its additions to knowledge, continues to provide material suitable for the teaching collections. He continued to edit the journal *Iraq*, in which his reports are published annually.

Dr. Kenyon was prevented by the political situation from undertaking her normal season at Jericho and this was postponed until the Autumn Term. In addition to her work on Jericho material she was also engaged, amongst other things, in research on the Institute's Palestinian collection.

Mrs. Maxwell-Hyslop continued her investigation of the relationship of Etruscan cultures with that of the Orient in the eighth to seventh centuries B.C., including problems connected with the origins of Etruscan metallurgy.

Publications

By Professor Mallowan:
Twenty-five years of Mesopotamian Discovery. 80 pp.
The Excavations at Nimrud (Kalhu). *Iraq*, XIX (1956), pp. 1–25.

By Dr. Kenyon:
Tombs of the intermediate Early Bronze–Middle Bronze Age at Tell Ajjul. *Annual of Dept. of Antiquities, Jordan*, III (1956), pp. 41–55.
Excavations at Jericho—1956. *Palestine Expl. Quart.* (July–Dec. 1956), pp. 67–82.
Reply to Professor Braidwood. *Antiquity*, 122 (June 1957), pp. 82–84.

By Mrs. Maxwell-Hyslop:
Urartian Bronzes in Etruscan Tombs. *Iraq*, XVIII pt. 2 (1956), pp. 150–67.
Notes on some distinctive types of Bronzes from Populonia, Etruria. *Proc. Prehist. Soc.*, XXII (1956), pp. 126–42.

DRAWING AND SURVEYING DEPARTMENT

The largest item in the Session's work was a coloured contour map of the Mediterranean area for the exhibition held in connection with the Prehistoric Society's Conference (26th–28th April 1957) on "The Mediterranean down to 1000 B.C."

In addition, the usual services were provided to members of the staff both for departmental work and for their research publications.

With a view to improving the practical facilities for instruction in surveying, it was reluctantly decided to restrict admission to students following degree and diploma courses in archaeology.

PHOTOGRAPHIC DEPARTMENT

The Department continues to make a full contribution both to teaching and to research. 131 teaching hours were completed; 1,800 lantern slides and 3,000 prints and enlargements were produced. A number of external lectures on photography applied to archaeology was also given.

A beginning has been made with a second film illustrating archaeological technique on the lines of the wall plaster film mentioned in the last *Report*, its subject being mosaic pavements. The Department carried out the photographic work required in connection with the restoration of the Verulamium wall plaster, by preparing two large mosaics 8 ft. by 2 ft. 6 in. and 6 ft. by 2 ft., which formed the basis for the reconstruction.

The Department has also undertaken the photography for one major and five smaller excavations.

TECHNICAL DEPARTMENT

24 students have been working in the Department, 6 full-time students following the Technical course, 15 students for Diplomas and Higher Degrees, and 3 full-time Occasional Students.

Work was carried out for the museums at Alton (Curtis), Plymouth, and Lewes, and for expeditions which had been excavating at Canterbury, Lachish, Nimrud, Verulamium, and at a number of sites in South-West England. Of particular interest was a collection of Assyrian ivories from Nimrud, which have been mended and restored by Miss Starkey.

Models of pleistocene mammalia were prepared for the Hereford, Horniman and Manx museums. Orders have been received from Woolwich, Manchester, Bristol, Sheffield, and New Zealand museums, totalling 38 animals, but no start has been made on these owing to the Institute's diorama programme necessitated by the move to Gordon Square.

Two new models were completed under the direction of Professor Zeuner: they were the Soay sheep and the elk (*alces latifrons*).

Again, visits were made to the British Museum (Natural History), the Courtauld Institute of Art and the Ministry of Works Laboratory, where members of staff gave lectures and demonstrations.

The film illustrating the lifting and treatment of Roman wall plaster from Verulamium was added to the Department's teaching films.

Among past students, Miss Rosalind Baker obtained a two-year Traineeship as Archaeological Assistant in the City Museum, Glasgow. Miss Sophia Mottram was appointed Curator of the Kings Lynn Museum and Art Gallery, and Mr. Mohamed Saleh obtained a post in the Department of Western Asiatic Antiquities at the British Museum.

Mr. H. M. H. Hodges has joined the Department on the retirement of Miss Olive Starkey.

THE LIBRARY

The Library was regularly and fully used and the number of books borrowed continued to increase.

Lecturers for the Extra-Mural Diploma in Archaeology continued to use the slide collection, but the number of slides borrowed dropped considerably with the building-

up of the Extra-Mural Department's own collection. During the year the European section of the slide collection was reorganised.

The Library has been fortunate in receiving a large gift of pamphlets and off-prints from Sir Leonard Woolley as well as a gift of books from Professor Childe's library on his retirement. These benefactions have added considerably to the older and rarer archaeological works in the Institute.

The following is a summary of additions made during the year:

Books		385	*Pamphlets*		384
purchased	94		purchased	8	
presented	235		presented	355	
exchanged	56		exchanged	21	
Periodicals		323	*Lantern slides*		768

309 volumes have been bound.

Volumes lent have totalled 3,083, the highest month being October (446), the lowest August (129). 65 works were borrowed from outside libraries and 16 lent. 5,252 lantern slides were lent.

The following have presented books and periodicals:
Y. Aharoni; Mrs. Amiran; A. M. ApSimon; A. J. Arkell; P. Ashbee; N. Avigad; Miss R. Baker; Miss V. Biro; Dr. L. Biek; Bogota, Banco de la Republica; British Archaeological Association; British Museum Dept. of British and Medieval Antiquities; Professor V. G. Childe; A. Christie; CIBA Review; Professor K. de B. Codrington; Dr. I. W. Cornwall; J. D. Cowen; L. S. Cressman; Dr. A. H. Dani; F. Engel; French Embassy, Cultural Division; Miss K. M. Giannoulidou; Miss M. Gimbutas; Dr. H. Godwin; Goldsmith's Librarian; Professor W. F. Grimes; Signora Guido; Professor C. F. C. Hawkes; H. Helbaek; H. W. M. Hodges; J. M. Holmes; Miss M. Howard; Mrs. Maxwell-Hyslop; Govt. of India, Department of Archaeology; Dr. F. A. Khan; Dr. K. M. Kenyon; A. D. Lacaille; M. Lisowski; Professor M. E. L. Mallowan; Miss S. Mann; I. D. Margary; S. Marstrander; H.M. Ministry of Works; Netherlands Embassy; C. D. P. Nicholson; Lady Petrie; D. Philips; Miss J. Philips; Polish Cultural Institute; E. Pyddoke; J. Ritson; Royal Institute for International Affairs; M. Sayans Castanos; M. Senyurek; Dr. M. Seshadri; Miss G. Simpson; Society for American Archaeology; Society of Antiquaries of London; Dr. Subbarao; Professor T. Sulimirski; E. H. Swanson; Miss J. du Plat Taylor; Miss O. Tufnell; Union of South Africa, Archaeological Survey; Wellcome-Marston Archaeological Research Expedition to the Near East; Sir Mortimer Wheeler; Sir Leonard Woolley; Mrs. Wyness; Professor F. E. Zeuner.

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